

# FOURTEENTH REPORT

(SIXTH BIENNIAL)

OF THE

# STATE BOARD OF HEALTH

AND

## VITAL STATISTICS

OF

MINNESOTA, 1891-92,

CONTAINING

REPORT OF THE SECRETARY TO THE BOARD,

WITH APPENDIX,

AND

## PUBLIC HEALTH IN MINNESOTA,

(THE MONTHLY OFFICIAL PUBLICATION OF THE BOARD.)

FROM JANUARY 1, 1891, TO JANUARY 1, 1893.

STATE BOARD OF HEALTH AND VITAL STATISTICS OF MINNESOTA, /  
OFFICE OF THE SECRETARY, December 26, 1892. \

*To His Excellency, W. R. Merriam, Governor:*

SIR: I have the honor to transmit herewith the Report of the State Board of Health and Vital Statistics for the period of two years, from December 31, 1891, to January 1, 1893. It includes--

I. The Report of the Secretary and Appendix thereto.

II. PUBLIC HEALTH IN MINNESOTA, the official publication of the Board.

The Third Bi-ennial Report on the 'Vital Statistics of the State of Minnesota,' for the years 1891-92, was sent to the State printer, November 26, 1892, and is now being printed, and will be published separately.

Very respectfully, your obedient servant,

CHARLES N. HEWITT.

*Secretary and Executive Officer.*

*MEMBERS OF THE STATE BOARD OF HEALTH AND  
VITAL STATISTICS.*

FRANKLIN STAPLES, M. D., President,	Winona
CHAS. N. HEWITT, M. D., Secretary and Executive Officer,	Red Wing
W. H. LEONARD, M. D.,	Minneapolis
P. H. MILLARD, M. D.,	St. Paul
J. H. PHILLIPS, M. D.,	Preston
W. J. MAYO, M. D.,	Rochester
CHAS. F. McCOMB, M. D.,	Duluth

All official correspondence should be addressed to the Secretary, the Executive Officer of the Board.

*CHAPTER 15, GENERAL LAWS OF 1872, AS AMENDED TO  
JANUARY 1, 1893.*

SECTION 1. The Governor shall appoint seven physicians, one from the city of St. Paul, and the other six from different sections of the State, who shall constitute the State Board of Health and Vital Statistics. The physicians so appointed shall hold their offices for four years, and until their successors are appointed, and all vacancies in the Board shall be filled by the Governor.

SEC. 2. The State Board of Health shall place themselves in communication with the Local Boards of Health, the hospitals, asylums, and public institutions throughout the State, and shall take cognizance of the interests of Health and life among the citizens generally.

They shall make sanitary investigations and inquiries respecting the causes of disease, especially of epidemics, the source of mortality, the effects of localities, employments, conditions and circumstances on the public health; and they shall gather such information in respect to these matters as they may deem proper for diffusion among the people.

They shall devise some scheme whereby medical and vital statistics of sanitary may be obtained and act as an advisory Board of the State in all hygienic and medical matters, especially such as relate to the location, construction, sewerage, and administrations of prisons, hospitals, asylums and other public institutions.

They shall at each annual session of the Legislature make a report of their doings, investigations, and discoveries, with such suggestions as to legislative action as they may deem proper.

They shall also have charge of all matters pertaining to quarantine, and authority to enact and to enforce such measures as may be necessary to the public health.

SEC. 3. The Board shall hold regular meetings, at least once every three months, one of which meetings shall be held at the capitol during the session of the Legislature. Their first meeting shall be held at the Capitol within ten days after their appointment shall have been made, and three members shall always constitute a quorum for business. They shall elect, from their own number, a president and permanent secretary; the latter shall be their executive officer. No member except the secretary shall receive any compensation, but the actual expenses of any and all the members while engaged in the duties of the Board shall be allowed and paid to the extent authorized by this act.

SEC. 4. The Secretary shall perform and superintend the work prescribed in this act and shall perform such other duties as the Board may require. He shall furnish to the Legislature when in session, such information cognate to this act as from time to time they may deem necessary.

SEC. 5. The Secretary of the Board shall receive from the treasury, in quarterly payments, an annual salary of two thousand five hundred dollars, and his necessary and actual traveling expenses incurred in the performance of official duties, after they have been audited by the Board and approved by the Governor, and all other necessary expenses arising in this office shall be paid out of the treasury in the same manner as those of the different departments of State government; provided, that the expenses of this Board shall not exceed the sum of five thousand dollars per annum.

SEC. 6. This act shall take effect and be in force from and after its passage.

Approved March 4, 1872.

(See Appendix No. I.)

## REPORT OF THE SECRETARY AND EXECUTIVE OFFICER.

NOTE—Full details upon many subjects referred to in the following Report will be found in the volumes of PUBLIC HEALTH IN MINNESOTA, in the appendix.

I RESPECTFULLY submit a summary of the work of my office for the years 1891-92.

It is of two kinds. *Without the State* in relation with State Boards of Health and other sanitary authorities.

*Within the State*, one of daily correspondence, counsel or co-operation with Local Boards of Health in the prevention or control of infectious diseases of men and of domestic animals; the regulation of offensive trades; the collection and registration of Births and Deaths; the sanitary inspection of localities; the removal of nuisances or causes of sickness which such inspection may discover; mutual notification of sanitary dangers, and mutual co-ordination of effort to promote public health in definite and positive directions.

It was the deliberate provision of Chapter 132 Laws of 1883,\* that the work of State and Local Boards of Health should be so co-ordinated just as soon as the organization and work of the last were sufficiently advanced to make it practicable. The efforts of the Secretary have therefore been largely devoted to encouraging and supporting this growth. †

ORGANIZATION OF LOCAL BOARDS OF HEALTH.—These are of two kinds: of Cities, Boroughs, and Villages; and of Townships.‡

\* See Appendix No. 1.

† Townships .....	1334
Villages .....	264
Cities .....	39
Boroughs .....	2
Township Boards of Health not reported .....	30
Village Boards of Health not reported .....	18

† SUBJECTS UPON WHICH THE SECRETARY HAS WRITTEN TO LOCAL BOARDS OF HEALTH AND NUMBER OF LETTERS ON EACH SUBJECT.	1891	1892
Diphtheria .....	408	257
Scarlatina .....	131	139
Measles .....	19	17
Typhoid Fever .....	14	8
Small Pox .....	87	69
Infectious Diseases of Man .....	142	163
Glanders .....	234	180
Rabies .....	40	28
Infectious Diseases of Animals .....	56	61
Leprosy .....	25	29
Organized Local Boards of Health .....	96	122
Vaccine and Vaccination .....	384	287
Sanitary Statistics and Nuisances .....	50	96
Laboratory .....	24	25
Public Health .....	27	5
Vital Statistics .....	44	39
Immigration .....	13	1120
Miscellaneous .....	365	247
Cholera .....		261
	2159	3158

*City and Village Boards of Health.*—To get a clear idea of the number and importance of these Boards, a reference to the data on file in this office is needed. The statistics are as follows:

Of five cities of over 10,000 population each has a Health Officer but not all Boards of Health, as in some the Commissioner of Health serves alone. Their sanitary arrangements are well provided for and are partially able to meet emergencies. These cities include (census of 1890) 360,477 population.

Of cities of less than 10,000 population there are 26 in the state. Each has a Local Board of Health and Health Officer; none, so far as appears in returns to this office (census 1890) have proper funds or facilities for emergencies. There are in these cities 106,349 population. (Census 1890.)

There are 266 villages and boroughs in the state with a population varying from 39 to 3,363. All but 18 have Boards of Health 180 have physicians as Health Officers, while 67 have laymen as acting Health Officers till medical men can be found to serve. In some instances physicians decline to serve because they cannot afford to do so for less compensation than individuals pay for equivalent attention. The total population living in villages and boroughs, is 141,739. (Census 1890.)

In the large cities a powerful local professional and popular demand for sanitary improvement, has fostered and developed the organization and work of their Health Departments. But in the smaller cities and villages, and in the townships, there had been scarce any progress in this direction till the Legislatures of 1833 and 1835 (see Laws in appendix No. 1) gave to every locality, even the smallest township, a Local Board of Health with important and constant duty, and established an intimate and binding relation between these Boards, and between them and the State Board.

It has been a slow and tedious work to secure and preserve active Boards of Health in cities and villages of less than 5000 population. The greatest obstacle is the indifference of the city and village councils, as to this appointment, and their unwillingness to make any adequate financial provision for the support of a Health Officer, or for the current expenses of these Boards. Not one has ever provided a contingent fund for the care of sudden infectious disease, though experience has repeatedly demonstrated its necessity and economy. The common practice has been to trust to the known willingness of physicians to serve in an emergency when no one else could do as well, and then to refuse compensation at all proportioned to the service rendered, and to skimp the pecuniary outlay to the smallest possible amount. Most of the smaller cities and villages make none, or very small, provision for the pay of the Health Officer or for any expense of his office, and but few provide,

beforehand, even for a salary equal to that of the humblest other employee of the corporation.

A part of the proof of this statement will be found in the table which has been made from the returns on file in this office (Appendix No. II). It is not complete, accounting for but 19 out of 26 cities and 134 villages out of the 264. It gives the name of city or village; length of the present service of the Health Officer; summary of work done, and amount of compensation in 1892. I venture to claim that no other class of citizens has given to the locality in which they live anything like a parallel amount of purely professional or business service, for little or no pecuniary compensation.

One hundred and ninety physicians are now serving as Health Officers, in cities, villages and boroughs.

*Legislation Needed.*--The facts ought to secure legislation for the following purposes :

1. To fix the compensation of Health Officers of Villages and Cities so that it may be sufficient to induce a capable physician to accept and perform the duty, and that he may know what is to be his income as he now knows, in the language of the law, what are his duties.

2. A definite provision for the current expenses of the Health Officers and a contingent fund for the emergency of sudden infectious disease.

3. To define the executive machinery for the removal of nuisance or regulation of offensive trades, and provide for the various duties connected with the management of infectious diseases. All these duties are now obligatory, but the means for their performance are at fault or in dispute.

4. To secure the local independence of Health Officers, in matters of official opinion and action, in dealing with infectious diseases.

5. It is very important that the legislature make some general provision to remedy these defects in a law, which is in most respects a model. (Chapter 132, Sec. 4, Laws 1883.)

*Township Boards of Health.*--The total population of Minnesota living in cities, villages and boroughs is 593,457 (census 1890) and there remains therefore in 1334 townships, 708,369. (census 1890).

The Boards of Supervisors elected annually on the second Tuesday in March are the Boards of Health. They number at date, (Jan. 1, 1893) 1334 which includes those of all but thirty townships, of which we have the names, but can find no official record. (Most of them being unorganized are probably included in other towns.)

Of 1304 Township Boards of Health we have the name and address of the Chairman, Members and Clerks, and are in direct communication with the Chairman and Clerks constantly.

*Duties and Work of Chairman.*—The Chairman, in the absence of a medical man elected as Health Officer by the Board at their own will, or the suggestion of the State Board, (Laws 1883, Chap. 132, Sec 4) is acting Health Officer. He is, after his election, immediately supplied with a full file of all the publications of the State Board relating to his work. (Appendix No. III,) and all his requests for aid and information are promptly answered by the secretary.

An analysis of the returns of the township elections for several years, (Average of 1889, '90, '91 and '92) develops the fact that 54.19 per cent of the Chairman are re-elected, which means, as respects their work as Health Officers, that the secretary has over 600 new Chairman every year to instruct in their duties. During the years 1891, 1892, 53,400 circulars of instruction, laws and blanks for report, were sent out to the Chairman by the secretary. During that time he received 3035 letter of inquiry from them and wrote 5312 letters in return.

As 55% of the population live outside cities and villages and in the townships, and as a considerable proportion of preventable disease and death occur in this population, it is a matter of surprise that no systematic effort was long ago made to provide for their sanitary necessity. It is true that almost the first Public Health legislation, in this country was for townships, to enable them to deal w.th small-pox, and was in general terms intended to cover other infectious disease, but like so much of this kind of enactment, duty was prescribed without proper definition and provision of methods and means, so that it required a pestilence to galvanize such organizations into a hurried and spasmodic activity, and the work done was of the same character, hasty, ill-done, often misdone, expensive and very unsatisfactory.

The State Board of Health has been compelled to study the question of township sanitary service from its organization in March, 1872, to date, and scarce a day has passed bat that some phase of it has demanded attention from the Secretary. In 1883, after examining all accessible literature on the subject, he proposed to the State Board of Health, a form of law to organize Boards of Health, with common powers in every city, village and township, and in direct and intimate relation with the State Board. It was submitted to competent lawyers for criticism, and became by act of the Legislature, Chapter 132, Laws of 1883. The further legislation of 1885, (Appendix No. I., for both laws) giving control of infectious diseases of animals, and offensive trades, completed the sanitary laws of Minnesota and put the State far in advance of her sister States in the direction of the organization of Boards of Health, and in the amount of power and duty devolved upon them. Our legislation is peculiar in the vital union which is established between the Local Boards, and between them and the State Board, of which the result is that

to-day, after ten years of work under these laws we have a State Public Health Service which is an active and vigorous organization and is increasing in activity and efficiency daily.

*The work of Township Boards of Health.* No better demonstration of the truth of this statement can be given than the following memoranda as to the work of Chairmen of Township Boards of Health for the years 1891 and 1892 a branch of that Service from which no such results were expected.

The Township Boards are responsible for the sanitary care of the farming communities of the State, which number 708,369 of the population and occupy much the largest proportion of its area. By the present law, their rights and duties are the same, differing only in degree, as those of City and Village Boards of Health. They work under different conditions; have to deal with a scattered population; in isolated family groups; of common occupation.

*Correspondence of Township Chairmen.* But few Townships have resident medical men to serve as Health Officers in an emergency. Their Boards of Health are therefore thrown into close relations with the Secretary of the State Board, who has so become their constant adviser in all matters pertaining to public health. During the year 1891 the Chairmen of these Boards wrote to him 1468 letters, upon the following subjects: Diphtheria, 515; Scarlatina, 266; Small-pox, 13; Glanders, 241; Rabies, 52 and upon miscellaneous topics, 380. In 1892 they wrote 1567 letters on the same topics, not yet classified.

*Infectious Diseases Discovered and Reported by Chairmen.* In 1891 they reported to the secretary 149 separate outbreaks of Diphtheria asking for instructions, circulars on the disease for distribution, and posters for use on infected houses. In this way immediate notice was given of 673 cases of the disease and 253 deaths. In 1892 they reported 80 outbreaks with 286 cases and 89 deaths. As a rule each outbreak of infectious disease so reported is accounted for at frequent intervals till it has been disposed of.

Every encouragement and assistance possible has been given by the State Board to the Township Boards through its Secretary, and their present comparative efficiency is the outcome of twenty years of continuous effort.

*Control of Infectious Diseases in Townships.* At first thought it would seem easier to control an infectious disease in a country township than in a village or city, and so it would be if a Township Board of Health had at its ready disposal physicians, nurses, isolation and hospital accommodation, as well organized villages and cities are supposed, and ought to have; but it lacks nearly all these things. Physicians are rarely in residence but must be called from villages or cities more or less

remote, at the expense of the Town usually, unless the patient is a pauper and a county charge.

*The need for Nurses in Townships.* Nurses trained to the care of infectious diseases are not to be had, and those of the average sort find better wages, accommodations and facilities in villages and cities, so that they are difficult to secure in townships even for greater wages than poor people can--or Local Boards are willing to--pay. I am sure that those who ought to supply this grievous need are not aware of its extent or importance. I can give many illustrations of it from the piteful appeals of Chairman to the State Board for *any nurse* who can do something to lighten the burden of the mothers of families stricken with diphtheria (for example) who are utterly unable properly to care for them. Add to this, lack of roomy houses, and proper food or cooking, and frequent deaths, with no help except what the Chairman and others can do on the outside of the house and one can form an idea of conditions repeatedly paralleled in the experience of Township Boards of Health. Infectious diseases prevail largely among children and commonly in the families of newcomer farmers, with scarcely any accommodations or knowledge for their care, able to speak only their own language and ignorant how to apply for help or what to ask for.

No one who has any knowledge of the facts can charge this lack of efficient and sufficient nursing to any want of neighborly feeling or to heartless disregard of the needs of others, for it would be unjust and untrue. There are none or very few unemployed women in any farming community; all are busy and many find little time for social enjoyment much less for the prolonged isolation which the nursing of the sick of infectious disease always demands. Mothers of families have to consider the danger to their own children which such services to others involves under the peculiarly difficult circumstances here referred to, so that it is not difficult to account for lamentable fact that proper nursing is often wanting in country districts.

I have repeatedly called the attention of the Board and of the public to this subject, and I should fail in a very important part of my duty did I neglect any opportunity to impress upon all Churches and Christian people to examine into this need and help to supply it.

*Common humanity and public safety demand that no time be lost in making the needful arrangements for providing a supply of competent women nurses, willing to serve in the care of infectious diseases in country districts, and arranging, in part at least, for their compensation.*

It must not be forgotten that the need for this aid varies exceedingly. Sometimes we could use a half dozen in a single Township; at other times we do not know where to use one. But as we have no supply, the demand is mostly from those in despair of

other help, while if it was known that a supply was available, I am sure the deserving calls would exceed it.

*How to Prevent the Spread of Infection in Families, Isolation Houses.*--Buildings plainly furnished belonging to one or several adjacent Townships and available as places of refuge for the *well* children of a family in which infectious disease appears, would be of inestimable advantage and the means of limiting the victims to the first attacked.

This is proved by the fact that we have the record of many outbreaks (of diphtheria, for example,) in which the removal of the *well* children to the family of a relative or friend where were none, or grown-up children, has saved them from the disease and enabled the mother to devote her attention to the sick exclusively, to the mutual advantage of sick and well. The home in this way becomes a hospital from which all but the sick and attendants are excluded, and to which any other of the children taken sick can be immediately returned. The result has repeatedly been that there was but one, or possibly two sick where if all had remained at home all would have probably taken the infection. This removal to a place of safety in another family is unfortunately, rarely possible. Such a building as is needed would cost but a few hundred dollars, the furnishing need be only a few iron bedsteads, some chairs, and a small cook-stove, all the rest would come from the home of the family affected, as would care-taker, food, and other necessaries. In case the family were a town charge this arrangement would be cheaper than to care for the same children *sick at home*.

Despite the difficulties incidental to their organization; limited term of service; and consequent inexperience, some of the most efficient sanitary service in the control of infectious disease, has been done by farmers--Chairmen of Township Boards of Health, as above demonstrated. This steady advance of these Boards through the activity of their Chairmen is perhaps the most noteworthy fact in the working of the State Public Health Service for the past two years.

*Legislation for Township Boards of Health.*--The legislation needed to encourage and support them in the performance of the simplest and most essential of their duties is the following:

1. A longer term of service, so arranged that there shall be always two members of two years service on the Board.
2. Provision for proper compensation of the Chairman when on Public Health duty in the execution of law, as when searching for, isolating, or caring for infectious diseases of men or animals, doing, or superintending disinfection; providing medical or nursing care for the poor sick; making the "May Sanitary Inspection" or other duty required by law or the instructions of the State Board of Health.

3. The same provision should of course be made to compensate any member of the Board who is required to assist or to act for the Chairman.

4. A change in the method of adjusting the assumption of the expenses of villages and townships for infectious disease, by the Board of County Commissioners as provided in Section 29, Laws of 1883,\* so that Township Boards may be sure of the share the county is to bear of expense incurred in the control of such diseases.

*Duties and Work of Clerks of Township Boards.*—These officers are responsible to the Secretary of the State Board, for monthly reports of births and deaths in their township. 78.71% are re-elected (average of 5 years) and some of them have held the office for a long term of years. As soon as a new election is reported to the Secretary a full file of publications, instructions, blanks, etc. relating to his work is sent to each new clerks. The clerks are very often the correspondents for the Local Board, and take interest in local affairs outside their own duties. During the years 1891, '92 the Secretary sent to these clerks 164,400 blanks for the reports of births and deaths 2188 circulars and copies of the Vital Statistics law (Chap. 114, Laws 1887) and wrote them 2263 letters.

*Correspondence with Health Officers and Clerks.* During the year 1891, for example, 1425 Clerks and Health Officers reported 19,318 births, and 7144 deaths, a total of 26,462 individual records. During the year, 1163 letters were sent to clerks respecting these records, and 1264 files have been sent to them, containing on the average, 75 each—a total of 95,100 blanks for such reports. Out of the 1304 Township Clerks, but 42 have failed to make any returns of births or deaths during the year 1891, which, when it is remembered that many of the Townships have a very scattered population, and it is chiefly those which are at fault, is a remarkable record.

These returns for 1892 are not yet complete, but up to January 1, 1893, but 45 clerks out of a total of 1304 have failed to make a return, and when the records are completed in February there will be a still smaller number behind. We can safely challenge comparison with similar work in any other state, and are sure that our system of monthly returns will increase the legal value of the Vital Statistics almost as much as it is proven to add to their use-

\*SEC. 29. All expenses so incurred for the control of infectious diseases, etc., by any Town, or village Board of Health, shall thereafter be authorized by the county commissioner of the district wherein such town or village is situate, and when so authorized shall be audited by the county commissioners, and when so audited, paid out of the county treasury by orders on the treasurer, drawn by the county auditor, and paid out of the general revenue fund of the county, as other claims against the county are paid. All expenses incurred by any City Board of Health, shall in the first instance, be borne by and paid out of the city treasury. The proper authorities of said city shall certify the amount required to reimburse said city to the county auditor at the time of certifying other taxes, and such auditor shall extend on the tax list of the county a tax sufficient to pay the amount so certified, which tax shall be collected as other taxes and paid over to the treasurer of such city. As amended by Chap. 175, Laws of 1889. Approved, April 24, 1889.

fulness as aids to the discovery and control of preventable disease. In a subsequent paragraph will be found statistics of infectious diseases located by their aid in 1891-92.

VITAL STATISTICS have already been referred to in stating the duties and work of the township clerks, and they are fully treated in the REPORT ON THE VITAL STATISTICS OF 1890-91 by the Secretary which has been in the hands of the State printer since November 25, 1892, soon to be published.

Attention is called to the abstracts of the returns of deaths published monthly in PUBLIC HEALTH IN MINNESOTA\* which show the distribution and mortality of the more important diseases; comparative mortality in city and country; mortality by classes of population; and the dead to 1000 living, corrected to the localities in which the deaths actually occurred.

Of the use of the corrected returns of deaths from infectious diseases for the study of their seasonal prevalence; their relative mortality; and mortality at different ages I ask an examination of the graphic charts attached to this report which condense the statistics of the leading causes of mortality in Minnesota for the last five years 1887-91, with the meteorological means, both, from monthly reports. These charts are copies of those in daily use in the secretary's office for keeping tally of infectious disease distribution and management, all over the State. (Appendix No. IV.)

The question is asked, How reliable are the returns of causes of death? In reply, To correct or verify these returns, 750 special inquiries were addressed to physicians in 1891 to which 667 replies were received, and but 83 made no reply. In 1892, 716 inquiries have been addressed to physicians, and 621 replies have come to hand. As many were written only last month (Dec. 1892), it is fair to assume that though 95 replies are missing, nearly all will be received.

Medical men have cordially given help to the secretary, not only in the matter of correct nomenclature but by frequent notification of the existence of outbreaks of infectious diseases, and many of them have advised and assisted Township Chairmen in their management.

In addition, the Secretary wrote 1163 letters in 1891 and 1100 in 1892 to Health Officers and Clerks for returns, or as to their correction. The result has been a more detailed and careful revision of our Vital Statistics than is possible under any other system of collection. The *monthly* return enables prompt revision while the occurrence reported is fresh, and in case of death from infectious disease, often serves as notification of the existence of that disease in a locality, particularly in Townships, where from the lack of medical attendance the Chairman gets his first notice from the Secretary of the State Board.

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\*Last Appendix.

For example: the returns of causes of death for 1891 contained 390 reports of diphtheria. All such as were not otherwise accounted for, were immediately notified to the Health Officer or Chairman for special report. In 1892, the number of these reports was 313.

Among them were a large proportion relating to outbreaks already under supervision, but also a considerable number which gave their first notice to the Chairman of Township Boards of the existence of this disease. The notice is usually accompanied by a circular on the disease in question and prepaid envelope for reply.

NOTIFICATION OF INFECTIOUS DISEASES WITHIN THE STATE *as a means for their control*, became obligatory in Minnesota on the 3d of March, 1883.\* It includes cases of such disease, and deaths therefrom, and is required of physicians, heads of families, keepers of lodging houses, and hotels and of every person who has knowledge of the fact of such case or death. The report must be to the Board of Health of the township, village, or city in which the case or death occurs—that is to the Chairman or Health Officer of such Board, and is *the first step* in sanitary control of the disease notified.

The next step, in the notification is taken by the Health Officers or Chairmen, as the case may be, who report the facts immediately to the Secretary of the State Board of Health with a memorandum of the quarantine and sanitary measures the local board has taken. (Chap. 132, Laws '83, Sec. 18, Appendix No. I.)

To illustrate the operation of this form of notification the following statement made up from my records, will serve.

*Diphtheria* is the most constantly observed of all infectious diseases in Minnesota and so happens to be the one as respects which the data referred to are available for 1891 and 1892.

In 1891 notification was given to the Secretary by the Health Officers and Chairmen of 198 different outbreaks of Diphtheria in which up to date of last report there had been 979 cases and 319 deaths. In 1892 (To date January 1, 1893) there have been reported by the same officers 125 different outbreaks with 609 cases and 127 deaths. In 1891 these reports came from 11 cities, 38 villages and 149 townships, and in 1892 from 10 cities, 35 villages, and 80 townships. *It is worth notice that out of a total, for the two years, of 329 reporters 229 or over 70 per cent, were farmers; Chairmen of Boards of Health.*

The third step is immediately taken by the Secretary: First the Local Board of the affected district is promptly supplied with a full file of all the publications of the State Board on the disease in question, with blanks for the use of physicians and others; posters for placarding houses; popular

\* Chap. 132, Laws of 1883, Secs. 21, 22, 23—Appendix No. 1.

instructions as to the character and management of the disease with a view to its control or extinction, and lastly he writes any suggestions as to the particular outbreak, or makes a personal visit as seem to him, needful.

The locality affected cared for, the Secretary proceeds to put other localities who are in danger upon their guard if exposed by the outbreak in hand, this is *the fourth step* within the State and subsequent measures are determined as occasion requires by the Local Board, or by the State Board if the matter involves more than one locality.

The next step in our protection from within brings us to the State boundary, and it will be most convenient to complete this branch of the work of the Board by stating here as briefly as possible just what has been done, and estimate its value.

*Inter-State notification of infectious diseases* was proposed by this Board in 1879, and formally accepted by other State Boards in 1886. Full details with respect to its adoption and success will be found in the special report, Appendix No. V. From our State this information is possible and invariable, because "*obligatory notification*" brings all the facts to the knowledge of the Local Boards, and from them promptly to the Secretary of the State Board, who as promptly notifies the secretaries of other State Boards.

It is evident that to be of any appreciable value the inter-state information must rest upon obligatory notification by Physicians and others to Local Boards and by them to the Secretary of State Board, as is the established custom in this State. Unfortunately this organized and obligatory system of infectious disease notification exists in very few, if any other of the States, so that their Boards of Health have no reliable and official information except by the courtesy of Local Boards, where there are any, or in the absence of that, newspaper telegrams.

I submit a statistical table showing the results of this notification between State Boards of Health during the years 1886-92. It will be seen that some of the largest States have not reported, and that many others are not on the list.

The following State Boards of Health have not reported the existence of any infectious disease during the last two years: Arkansas, Indiana, Kentucky, Nebraska, New Hampshire, New York, North Dakota, Rhode Island, South Carolina, South Dakota, Texas, Vermont, Virginia, Mississippi, Washington Ter., Oklahoma Ter. It is impossible to tell just how many have been free from the notifiable diseases during the time, but some which have had them as New York, have never reported them, while some of the others have never given any evidence of their intention to do so.

**ABSTRACT OF INTER-STATE NOTIFICATION OF INFECTIOUS  
DISEASES OF MEN FOR 7 YEARS 1886-1892.**

No. notifi'ns received	Disease	Cases	D'ths	NO. OF NOTIFICATIONS BY DIFFERENT STATES TERRITORIES AND PROVINCES.		
				Pennsylvania	Missouri	3
Total 1886 2	Variola	4		Pennsylvania 60	Missouri	3
" 1887 4	"	4		Illinois 20	North Carolina	2
" 1888 94	"	624	103	Wisconsin 17	New Jersey	2
" 1888 1	Typhus fever	1		Michigan 16	Colorado	1
" 1889 34	Variola	168	17	Connecticut 15	Alabama	1
" 1889 1	Yellow fever	2	1	Ohio 13	Florida	1
" 1890 15	Variola	4		Iowa 12	Delaware	1
" 1890 2	Leprosy	2		Tennessee 10	West Virginia	1
" 1891 50	Variola	200	31	Maine 9	Dakota Ter.	1
" 1892 43	"	206	81	Minnesota 8	Prov. of Quebec	20
" 1892 1	Cholera	1	1	Kansas 6	Prov. of Ontario	17
" 1892 1	Leprosy	1		Massachusetts 6		
" 1892 1	Diphtheria	130	37	California 5		
Total 7 yrs 219		1347	271	Louisiana 3		
Total 242	Variola	1210	232		States 22	
" 1	Typhus fever	1		Territory 1		
" 1	Yellow fever	2	1	Provinces 3		
" 3	Leprosy	3				
" 1	Cholera	1	1			
" 1	Diphtheria	130	37			

An attempt will be made immediately to discover how much reliance can be placed on this method of information the coming season. At present, except as respects a few State Boards, the writer has little confidence in it, simply because few have the machinery for prompt and accurate collection of the facts.

As illustrating the need for this information and the notable lack of it, I quote instances from my correspondence. "Small-pox had serious and distributed prevalence in cities of New Jersey. (1891-92, October-March). Dr. Lee, of Pennsylvania, notified me and as we traced our only outbreak in 1891 to an eastern traveling man, I wrote, asking for notification, got one reply as to facts in general, and nothing else since.

In same month and year, large travel from the north to Florida, newspaper reports of small-pox in Georgia, letter to Health Officer of Savannah brought notice of 65 cases and much exposure.

1892, August 1—Newspaper reports prompted telegraphic inquiry of Secretary Provincial Board of Health of Manitoba. Answer: 10 cases of small-pox in two places and under control. Dr. De Vaux, Secretary State Board of Health of North Dakota notified the rumor of this outbreak on the same day.

The State Board of Health of New York had never reported infectious diseases though the entering port of nearly all that come *via* immigration, is New York city.

We have been very fortunate in Minnesota, in that there were but two occasions to notify other State Boards in 1891 and they were two appearances of the same outbreak of Variola in St Paul. In 1892 but one notification was sent out—that for supposed Variola in Motley—which for safety was treated as varioloid, but proved to be varicella (chicken pox).

SEA-COAST NOTIFICATION OF INFECTIOUS DISEASES OF MEN.—  
Beyond all but the sea-coast States, and on their ocean border, is another defense against the importation of infectious diseases, the State and local quarantine stations, supplemented by those of the Marine Hospital Service of the Treasury department, and by the St. Lawrence quarantine of the Dominion of Canada.

The constant improvement in the notification of these diseases within our own border by the mutual co-operation of State and Local Boards of Health under the operation of obligatory notification since 1883, had brought us to know how much infectious disease, came in the persons and baggage of immigrants, and prompted vigorous efforts to obtain some form of notification from the Quarantine authorities of New York Harbor as early as 1886, but no help was given.

*Canadian sea-coast notification.* It so happened in 1888 that the writer had peculiar opportunities for approaching the Minister in charge of the Quarantine Service of the Dominion of Canada, and the leading Medical Officer of that Service, and was able, (by the occurrence of a case of importation of small-pox in clothing of an immigrant, through that Quarantine, direct to Minnesota,) to demonstrate the need of a change, and the value of sea-board notification to interior Provinces and States. A sensible advance in that direction began as respects our relations with the Canadian Quarantine Service which bids fair to be of important use in the work of the coming year, as it was last September. Through no fault of the Medical Officer at Grosse Isle, Dr. Montezambert, the arrangement is still more personal than official, but it is none the less valuable.

*United States Sea-board notification of infectious diseases.* Meantime the tide of immigration increased and the need for notification from the sea-board became more and more apparent and urgent, while our facilities for using such information were nearly all we could expect, and constantly improving, but no opportunity occurred till the organization of the Immigration Bureau of the Treasury Department in 1890-91. Advantage was taken of the fact that the Bureau could not avoid knowledge of the infectious disease history of immigrants, and of the possibilities of their becoming the carriers of infection to the remotest country districts of the interior States; and its aid was asked for such notification as would enable us to know, at the earliest practicable moment, the name, date, and exposure, name of disease, measures of control taken, date of departure, destination in the State and sanitary condition of baggage.

This request was made through the Marine Hospital Service to the Secretary of the Treasury, April 13th and June 10th, 1891, and on the 24th of the same month the first sea-board notification of infectious diseases from the General Government to the Board of Health of an interior State was sent to Minnesota from New York

harbor, and has gone on uninterruptedly since. (See Appendix No. V for details.)

December 28th, 1891, at the request of the same Board, notification of the same kind was ordered from all American ports where immigrants are landed, but the Immigration Bureau is unable to give such reports from Canadian ports, having no agents there.

Great as is the advance, it is much less than we ought to make and must secure, to obtain the results which a true and general notification, inter-state, and sea-board ought to give.

*Value of above notification*—It remains, to complete this review of the means at our disposal, for forefending the attack of infectious diseases from without the State, to add a note on the use that we make of such facts as we can get from the sources already described.

In Appendix No. VI will be found a statistical table which puts into figures our experience in 1892.

But little help came from Inter-state notification, and the prospect for the future is no better till report of infectious disease is obligatory by physicians to Chairmen and Health Officers and by them to the secretaries of State Boards, in all States professing to furnish such reports.

It will be observed that sixteen cases of the disease notified were found and isolated. For full details of this work, and the rules which are in force for the discovery and isolation of suspects, or actual cases of infectious disease reference may be made to PUBLIC HEALTH IN MINNESOTA, the monthly publication of this Board, in which the whole subject is discussed in all its bearings. (see last Appendix.) An index is provided to make inquiry easy.

**IMMIGRATION AND CHOLERA.**—It is of the utmost importance to have and enforce clear ideas of the value of the means of defense against infectious disease which have now been described. Every one has constantly in mind the probable approach of cholera this year, and its possible invasion of the interior of our country as has happened before. It affords, therefore, the illustration which will best serve our present purpose though, not the disease by a long ways, which is sure to cause the greatest suffering and mortality before next winter. As it comes from without—is an exotic disease—we will study our defenses from the outside, in.

*Cholera* comes in the persons, clothing, or baggage of passengers and in the cargoes and in hulls of ships. At this moment its infection is distributed in Europe and is known to be active at some of her sea-ports whence immigrants embark en route to this country.

*Our first defense* should, then, be at foreign sea-ports in the office and under the immediate and active direction of the U. S.

*Minister to the country, and the U. S. Consul at the port where immigrants embark.*

It is a curious commentary on our foreign service that there is a lack of co-ordination between the Ministers and Consuls—the last being, or treated as, a distinct branch of service. To the average citizen they would appear to be parts of our common foreign representative body and that they could co-operate in no way so efficiently, *just now*, as in watching, guarding against, and reporting on cholera in Europe. It is safe to assume that the Ministerial and Consular forces of other nations interested, are doing this very thing, and that it is not left to the Consuls alone, or to either, without the assistance of competent Health Officers who are practically familiar with infectious disease management. It is apparent that the value of the work depends largely on the experience and capacity of the physician assigned to this duty. The principal things to be done, as respects immigrants, are the following:

1. Their record as respects health, and exposure to infectious disease in their own country furnished by the U. S. representatives there, and endorsed by the same officials at any intermediate port, should be required at the port of final embarkation to this country.

2. Taking that as a basis the Health Officer assigned to duty at last named port should examine each immigrant and endorse conclusions on the above-named certificate; should vaccinate all immigrants immediately on arrival, see that all have baths and clean clothes, and that all baggage is disinfected before permitted to take ship. The certificate endorsed should accompany the immigrant.

3. In case of infectious disease among immigrants at port of embarkation or reasonable evidence of exposure thereto, the Health Officer should take the same measures as are taken at the best Quarantine Stations on our sea-board, to prevent the infection going aboard ship.

4. Steamships carrying passengers or immigrants from infected ports, or who have been exposed to infectious disease, should be required to have as a part of their regular equipment, a disinfecting chamber for steam and hot air; sufficient facilities for hot baths for all classes of passengers, and sufficient hospital and isolation accommodations for all probable sick.

5. If the steamer, crew, or any class of passengers, are reasonably suspected of infectious disease, a medical officer detailed by the Consul should accompany the ship, and her departure should be telegraphed to the port of destination.

Everyone of these measures are practicable, all are needed, and all can be enforced, with the co-operation of the S. S. Companies, if, by them, they can be sure of diminished delay and expense at our Quarantine Stations, as they assuredly should be.

*The second out-post against the foreign invasion of infectious*

disease is the Sea-coast Quarantine, not only of the United States but of Canada, and very likely Mexico.

It is too much to expect this service absolutely to exclude all infectious diseases; no human power has yet been able to do that, but it should do two things:

(a). Keep all inland Boards of Health promptly notified of the approach or arrival of ships on which infection is known or suspected to be.

(b). To take every precaution to prevent the escape of infected persons or things from quarantine and to notify inland Boards of Health of the discharge and safety of all persons or things which have been detained as infected or suspected, giving name of ship, date of arrival, disease found or suspected, measures taken, name and local destination of passengers in the several States to the Secretary of the State Board of Health thereof. *Efficient service and prompt notification* include all.

The principal charge which inland Boards of Health can sustain against the two forms of outside defense above described, are neglect to enforce the vaccination of all passengers with fresh and active vaccine, and that this be done before embarking on the other side. It is useless to reply that it cannot be done. The writer, for one, knows better, and he knows too that much of the vaccine used is old and not properly authenticated. Small-pox is the disease most likely to come through quarantine. It always has been, and its infection comes in infected clothing as often, perhaps, as in the persons of the sick. It is perfectly just to demand that it be excluded, and to judge the efficiency of a given quarantine service by its success in this respect.

As to the exclusion of cholera this demand is fair: That its approach be notified, or rather its probable coming, and that ships, passengers, crews, and cargo, receive such attention, isolation, and disinfection as shall most certainly prevent their carrying infection beyond the quarantine. Seaboard notification at present in operation implies all this.

European and American experiences have amply proved that military cordons, and the most prolonged isolation and disinfection have been useless except to delay the advance of cholera; but the same experience has also shown that a quarantine station where reasonable detention, cleanliness, and modern, prompt, disinfection, with careful registration and use of the facts of the history and condition of the patient, as above provided, will catch developed cases, give concealed cases opportunity to develop, enable thorough personal and clothing disinfection, and in these ways greatly diminish the opportunity, or probability of the spread of the infection to the interior by persons or baggage, and the same *should be true* of merchandise.

PRECAUTIONS AGAINST SMALL POX AND CHOLERA IN 1892 began with the call for the May Sanitary Inspection. In the June

number of PUBLIC HEALTH IN MINNESOTA attention was called to the probability of the approach of cholera, and in July the warning was repeated, in both cases with full directions as to the inspection and management of suspects. (See PUBLIC HEALTH in last appendix to this report, for details, Vol. VIII., p. 32, and after.)

In September the Secretary inspected the quarantine arrangements at Sault Ste. Marie, finding satisfactory arrangement with Canadian Pacific R. R., as to immigrants and its promise to send none by boats. The facilities for isolation were nothing, and for disinfection very crude. Suspects not allowed to come across.

On the fifth and sixth of September the State Board of Health met and arranged for an inspection service for immigrants, and met the representatives of the railroads who promised every co-operation.

An abstract of sanitary regulations, suited to the emergency, was prepared and sent to all Health Officers and chairmen. A circular, asking for co-operation, was sent to mayors of cities, villages, and boards of supervisors, to which not a single mayor responded but those of Minneapolis and St. Paul.

*State Cholera Inspection Service.*—This, our first experiment of the kind, was organized in September, to assist the exclusion of cholera. It consisted in the examination, by medical inspectors, of immigrants (and other passengers, if there was occasion to suspect them) at the principal places where immigrants are landed or distributed in this State. It was impossible to know before hand where such inspection would be required or exactly what it could accomplish. The result showed that no cases of the disease or any persons requiring isolation, or any baggage that should be disinfected was found by the inspectors.

The service was stopped early in October. In the special report, (Appendix No. IX) will be found the details necessary to the history of the work. The total expense was \$1,297.18, of which an itemized account will be found under "Financial Statement Appendix No. XI."

*Disease Prevalence and Mortality in 1891-92 within the State.*—For full details of the returns of mortality reference is asked to the Report on the Vital Statistics of 1890-91, but to illustrate their utility for sanitary purposes, the advantage of monthly reports, and their relation to other branches of Public Health work, the facts of 27,320 deaths from nine of the leading causes of mortality have been taken as the basis of a special report. (Appendix IV.)

A reading of that memorandum, or rather a study of the charts which accompany it, will show where our worst enemies are, and which should receive our most serious attention and effective opposition.

*If these real and every-day causes of sickness, and premature death could have the interest and expenditure of thought, work,*

*and money which a suspicion of Asiatic cholera or a case of leprosy secures, what a glorious reduction of mortality and sickness we could effect!*

*Leprosy in Minnesota.*—The report of Chr. Gronvold, M. D., and the Secretary (Appendix No. X), brings our record of 20 years' study by the same observers down to January 1, 1893.

During the years 1891-92 four unreported cases have been found, and two have died, leaving the number at present 18.

The disease is confined to a single race, it has not appeared in the children of lepers to the fourth generation, and there is not a case in the State whose infection is traced to exposure here.

The lookout for cases of this disease is constant and vigilant and all reported cases are promptly investigated.

A careful reading of the report is asked of all who wish reliable information on the subject.

**INFECTIOUS DISEASES OF DOMESTIC ANIMALS.**—It is not long ago that Health Officers and other students of the causes of disease, began to discover a very close relationship between the fatal affections of men and animals. Much had been suspected, but now, with the assistance of bacteriology, and the study of the character of the specific causes of many diseases, it became known that Tuberculosis, Glanders, Rabies, Tetanus, and other diseases of men and animals, had a common character and cause, which last is transferable from man to animals and vice versa.

The experience of Koch, Pasteur, and a multitude of other workers in this department of Public Health have established the intimate relationship in health or disease of the whole animal creation, and their interdependence in both respects.

In 1885, chapter 200 of the laws of that year (Appendix No. I,) made Boards of Health responsible for the infectious diseases of domestic animals as they were already, for those of men. The following special report (Appendix No. VIII) will be found to justify that legislation and to give the most positive evidence of its value, as also of the appreciation in which it is held by the Chairmen of Township Boards of Health who are more interested in the work than any one else at present.

**GLANDERS.**—The particular occasion for the law was the wide spread prevalence of glanders in 1885 brought into the State from adjoining States and Territories. No sooner had the act become law, than under the direction of the State Board, and with a vigorous activity born of necessity, the Local Boards of Health began the fight with glanders and dishonest horse-traders which is as active today as eight years ago, but with greatly diminished prevalence of the disease, and a wholesome fear of consequences on the part of those who traded before without let or hindrance.

The itemized report (to be found in Appendix No. VIII) condenses the returns and records since 1885 in such form that any one interested can judge for himself of the character of the work

and the success of the prolonged conflict which Local Boards of Health, aided by the State Board, have been waging against a dangerous and insidious disease for so many years.

It will be seen that the law is peculiar in giving to all Local Boards of Health equal powers; in holding each responsible for the control of infectious diseases of animals in its own district; in giving the State Board co-ordinate powers, and enabling it to assist in many helpful ways.

The result is that though 1180 animals have been isolated as suspects and 615 killed as glandered, since March, 1885, there has been very little difficulty or hard feeling and but three law-suits reported, all of which were decided in favor of the Boards.

The slaughter in 1885 was 150; in 1892, 34, though there has been a great increase in the number of susceptible animals, and no let-up to the vigilance of the Local Boards, or of the State Board.

RABIES in the number and distribution of suspected cases comes next to, though far behind, glanders, during the last two years. Both diseases are first found in domestic animals, and are communicable to man, though rarely.

*Human Mortality from Glanders and Rabies.*—Since 1872, though nearly all suspected cases have been reported to and investigated by the State Board, but one case was reasonably suspect of Rabies, and three of Glanders.

*Pasteur Treatment of Rabies.*—It is proper to call the attention of the Board to the fact that four persons have gone outside the State for treatment at Pasteur Institutes under suspicion that they had been bitten by rabid animals and that in each case the suspected animal has been proved to be free of the disease by the method of Pasteur himself, in our own laboratory.

It should be understood that the success of the Pasteur treatment depends on the promptness with which it is used. It was this fact and the value of his test to determine the existence of the disease in a suspected animal, which induced the State Board of Health to instruct the Secretary to study the subject with Pasteur at the Pasteur Institute in Paris in 1890-91. He spent six weeks there and became familiar with methods referred to so that there is no obstacle but the expense of organization and maintenance to the having a Pasteur Institute under the auspices of the State Board of Health in this State. The cost of an establishment would not be over \$1,000 and the yearly expense of maintenance as a department of the Secretary's office, would not be more than \$800.

When it is understood that the treatment to be of use must begin immediately after the bite, and that it is harmless to persons who have not been bitten, it is evident that it would serve a good purpose not only for actual cases of the disease, but put at rest fears which make many a life a torture, or months by wearing doubts, after being bitten by animals suspected of the disease.

In Appendix VIII will be found the details of a considerable number of cases where dogs are known to have bitten men or animals and were suspected to be rabid. They show how much distress and misery such events occasion, and the difficulty of getting at the truth, or persuading people to take the only means to do so. These are: I. Careful isolation of the suspected animal (the first, if possible) till he has been long well, or develops and dies of disease. II. If he die, or is killed, with symptoms of the disease, to remove and send his brain to our laboratory where the Pasteur test will settle the question.

*To prevent Rabies*, the efficient means are registration and tagging of all dogs running at large; the arrest and slaughter of ownerless dogs, and, in the presence of the disease, the muzzling of all dogs at large.

THE LIBRARY contains, beside files of the State and some Local Boards of Health, reports, a file of the reports of the Medical Officer of the Local Government Board of England, statistical and special reports of some of the most important sanitary commissions of Parliament, and statistical and other reports from Ireland and Scotland.

Most of the other books are bound copies of the American, English, French, and German journals in daily use, and standard books of reference upon sanitary subjects. Additions of this kind have been limited to our current needs but our library, now, ought to be representative of all that is valuable in the practical departments of public health, and I hope for permission to enlarge it in this direction.

The books given to the library from the estate of Dr. Daniel W. Hand were a part of his professional collection. They are a fitting memorial of one who as our first President, and as an honored physician did so much by his gentle but powerful influence to guide the Board to its present position of trust and responsibility.

THE LABORATORY WORK has increased in some departments, and been less in others during the last two years.

1. *Water analysis* of suspected or proposed supplies for the State Institutions, for Local Boards of Health, and at times for individuals at the request of Health Officers.

No. of analyses, 29; for State, 2; for Local Boards, 25; for individuals, 2.

With the analyses advice has been asked and given as to details of supply, collection, storage, and protection from pollution.

2. *Suspected or known infectious disease of men and animals.*

Of men, advice demanding pathological inquiry or experiment with tissues has been mostly suspected Rabies, for which three brains of suspected dogs have been used for Pasteur's test without result. Investigation of a suspicious outbreak in and around Alex-

andria is still in progress (Jan. 1, 1893). Attention is called to the details and management of suspected outbreaks of this disease in different parts of the State. (Appendix No. VIII.)

*Means of Detecting Rabies and Glanders.*—It is only within a few years that the method of determining the real character of these diseases by the inoculation of animals has been practically available, and it is now in use in our laboratory where are to-day rabbits whose escape from the Pasteur test for Rabies has carried indescribable relief to persons bitten by the animals whose brains furnished the material for the experiments.

Tests for glanders have not been needed, as the specimens sent were clearly from cases of that disease.

It is hoped that the experiment with mallein (the preparation of the glanders bacillus) have now been sufficiently advanced to enable its use for the detection of this disease so early in its progress that it may be under practical control before it is infectious to other animals. The use of the preparation is harmless to well animals, but almost invariably detects glanders in its earliest stages when detection by any other means is impossible.

*Tuberculosis in Cattle.*—But two specimens received both unmistakably the disease. A few experiments have been made with tuberculin in the diagnosis of this disease in cattle; more are to be made. Delay is to make sure of a perfectly reliable preparation of the material and for the best methods for its use.

At present there seems little doubt of its very great value as the surest means of detecting this disease in cases where no other means are available.

The necessity for its use is twofold—to make sure that no tuberculous cow is used for private or public milk supply, and to put in the hands of the breeders of the best varieties of cattle the means of detecting the worst enemy against which they have to contend at the earliest practicable moment.

It is proposed to make a thorough investigation in the above directions as soon as reliable tuberculin is available.

VACCINE AND ITS USE: An inquiry made by the Secretary in 1890-91 as to the vaccination of school children, brought reports from 25,362 of whom but 30 per cent are vaccinated leaving seventy per cent with no protection against small-pox. The legitimate inference is that but few children under five years of age are vaccinated.

It is this startling fact which induced the State Board of Health to arrange for the production of an animal vaccine which should be as pure and active as it was possible to obtain, and be kept at the highest attainable standard by every precaution in its culture, distribution and use. The station was established 1890 and the product has been in constant use since, with an increasing distribution, in and outside of the State. Fuller details will be found in Appendix No. VII.

It should be clearly understood that the object in view is the constant supply of pure calf-lymph, for emergency and to foster and encourage vaccination among the people of the State as our surest protection against small-pox, which before its use was the most fatal and destructive of diseases.

THE FINANCIAL STATEMENT, exhibits the expenditure of the funds at the disposal of the Board from December 31, 1890, to January 1, 1893—Appendix No. XI.

*The State Board of Health Fund (\$5,000)* out of which is paid the salary of the Secretary (\$2,500), clerk hire in his office, the printing of the report of the Board, and of circulars, blanks, etc., respecting diseases of men, postage and incidental expenses. It is barely enough for current expenses and ought to be increased to at least \$7,500.

*The Vital Statistics Fund (\$1,000)*, used for clerk hire, printing, postage and incidental expenses of collecting and compiling the Statistics of Births and Deaths. The clerical work is increasing and more help will be needed the coming year, for which I respectfully urge an addition of \$500.

*The Infectious Diseases of Animals Fund (\$3,000).*—The draft upon this fund has, fortunately, been small. It was for printing of circular of information upon animal diseases, of blanks for reporting the same, other information and instruction for the guidance of Local Boards of Health in their management, postage, special investigations, and incidental expenses.

The fund is, of necessity, a provision against emergency which may at any time arise by an increase in the prevalence of glanders, rabies, malignant catarrh or tuberculosis, which must be promptly met for success in management. The amount of this appropriation should remain as at present for the above reasons. It has been the same for seven years but the amount actually used has been on the average but \$1,101.36 per annum. That expenditure has kept the State free of any but isolated outbreaks of the diseases mentioned, and has quickened the activity of Local Boards by information, counsel and support.

*The Cholera Emergency Fund* (Chapter 279, Laws of 1885), was made a standing appropriation for the "emergency which may arise from cholera in this State." There has been no occasion to draw upon it till last September (1892), when the appearance of that disease in New York City, and quarantine seemed to demand the Immigration Inspection Service which the Board put into operation by order of the Governor.

In view of the facts of cholera abroad and the possibilities of its coming to this country, it is desirable to continue this appropriation for at least its present amount.

There has been some delay in publishing this report because it is brought up to January 1, 1893, and because I was anxious to present the subject of cholera prospects and prevention up to the same date. The Legislature and the people should know the reasons which sustain the position this Board has always taken. That while much might be done abroad; on the sea-coast of this country, and by other states, to keep infectious diseases out of Minnesota, *the most remains to be done at home.* To that end the evidence of this Report and of PUBLIC HEALTH IN MINNESOTA (its last Appendix), are offered.

May I conclude this statement of the work of the twentieth and twenty-first years of service as your Secretary, with thanks to the Board for hearty support, and to the Local Boards for increasing zeal and efficiency. Both have made the best record in their history, during the last two years. If supported by the legislation here asked for, and by the people whom they serve, the record of the next two years may easily register still greater achievements.

CHARLES N. HEWITT, M. D.,

Secretary and Executive Officer.

RED WING, January 1, 1893.



# CHAPTER 132, LAWS OF 1883.

## AN ACT RELATING TO INFECTIOUS AND EPIDEMIC DISEASES, AND THE PRESERVATION OF THE PUBLIC HEALTH.

(WITH AMENDMENTS TO APRIL 24, 1892.)

Be it enacted by the Legislature of the State of Minnesota:

**S**ECTION 1. Whenever any part of this state appears to be threatened with, or is affected by, any epidemic or infectious disease, the State Board of Health may make, and from time to time alter and revoke, regulations for all or any of the following, among other purposes: (1) For the speedy interment of the dead. (2) For house to house visitation. (3) For the provision of medical aid and accommodation for patients, physicians and nurses. (4) For the promotion of cleansing, ventilation and disinfection; and (5) Guarding against the spread of disease by quarantine or exclusion of any infected persons, and may by order declare all or any of the regulations so made to be in force within the whole or any part or parts of the district of any Local Board of Health in this state and to apply to any vessels on any of the waters of this state or to any railway cars or trains or public vehicles of any kind, for the period named in such order, and may by any subsequent order abridge or extend such period.

SEC. 2. All regulations and orders so made by the State Board of Health shall be published in some paper of general circulation published at the capital of the state, and also in some paper published in the county where such disease may exist, and such publication shall be conclusive evidence thereof for all purposes.

SEC. 3. The Local Board of Health of any district or districts within which, or part of which regulations so issued by the State Board of Health are declared to be in force, shall superintend and see to the execution thereof, and shall appoint and pay such medical or other officers or persons, and do and provide all such acts, matters and things as may be necessary for mitigating or preventing the spread of any such disease, or for superintending or aiding in the execution of or executing such regulations as the case may require; said Local Board may also from time to time direct any prosecution or legal proceedings for or in respect of the willful disregard or neglect of any such regulation, or any regulation duly made and established by said Local Board. Said Local Boards shall have power of entry on any premises, vessel or vehicle, for the purpose of executing, or superintending the execution, of any regulations so issued by said State Board of Health or said Local Board.

SEC. 4. The town supervisors of each town together with a physician, to be employed by said supervisors when in their judgment necessary, or when ordered by the State Board of Health, shall constitute a Board of Health, and all villages, boroughs and cities shall have a Board of Health, to be chosen and to consist of the number hereafter provided, anything in the charter of any such village, borough or city to the contrary notwithstanding; such Boards shall, within their respective towns, villages, boroughs and cities, have and exercise all the powers necessary for preservation of the public health. Said village, borough or city Board shall consist of not less than three (3) members, one (1) of whom shall be a physician, and such physician shall be health officer and executive of the Board, and shall receive such compensation for his services as the council, or other bodies answering thereto, of the village, borough or city shall determine. Said Board shall be elected by the council, or other bodies answering thereto, of each village, borough and city on the first (1) Monday of April, A. D. one thousand eight hundred and eighty-five (1885). One member of such Board shall be elected for and hold such office for the term of three (3) years, one for two (2) years, and one for one (1) year, and one member of such Board shall be so elected annually thereafter, and all vacancies occurring in said Board shall be filled in like manner. It shall be the duty of the health officer to perform and superintend the work prescribed in this act and shall perform such other duties as the Board may require. He shall furnish to the Board such information cognate to this act as from time to time they may deem necessary, and to make once in each year, in the month of May, and oftener if necessary, a thorough sanitary inspection of said town, village, or borough or city, and present a written report of such inspection at the next meeting of the Board of Health, and he shall forward a copy of said report as soon as rendered to the State Board of Health; and he may at any time, when necessary, examine into all nuisances, sources of filth and causes of sickness, and said Board may make such regulations respecting the same as they may judge necessary for the public health and safety of the inhabitants, and every person who shall violate any order or regulation made by any Board of Health, and duly published, shall be deemed guilty of misdemeanor, and pun-

ished by a fine not exceeding one hundred dollars (\$100), or by imprisonment in the county jail not exceeding three (3) months. (As amended by Chap. 4, Laws of 1885.)

SEC. 5. Notice shall be given by the Board of Health of all orders and regulations made by them, by publishing the same in some newspaper, if there is one published in such town. If there is none, then by posting up such notice in five (5) public places therein; and such publications of said orders and regulations shall be deemed a legal notice to all persons.

SEC. 6. Whenever any nuisance, source of filth, or cause of sickness is found on private property, the Board of Health shall order the owner or occupant thereof, at his own expense, to remove the same within twenty-four (24) hours; and if the owner or occupant neglects so to do, he shall forfeit a sum not exceeding fifty dollars (\$50), to be recovered in the name of and for the use of the town, city or village.

SEC. 7. Whenever such owner or occupant shall not comply with such order of the Board of Health, said Board may cause the said nuisance, source of filth, or cause of sickness to be removed, and all expenses incurred thereby shall be paid by the said owner or occupant, or by such other person as has caused or permitted the same.

SEC. 8. Whenever the Board of Health thinks it necessary for the preservation of the health of the inhabitants to enter any building or vessel in their town for the purpose of examining into and destroying, removing or preventing any nuisance, source of filth, or cause of sickness and shall be refused such entry, the health officer or any member of the Board may make complaint under oath to a justice of the peace of his own town, stating the facts in the case so far as he has knowledge thereof.

SEC. 9. Such justice shall thereupon issue a warrant, directed to the sheriff or any constable of the county, commanding him to take sufficient aid, and being accompanied by two (2) or more of the Board of Health, between the hours of sunrise and sunset, to repair to the place where such nuisance, source of filth, or cause of sickness complained of may be, and the same destroy, remove or prevent, under the direction of the members of such Board of Health.

SEC. 10. All Local Boards of Health and health officers shall make such investigations and reports, and obey such directions as to infectious diseases, as shall be directed by the State Board of Health. And any member of any Board of Health, or health officer, who shall neglect to perform the duties required of him under the provisions of this act, or any other act relating to the duties of the Boards of Health or health officers of this State, or who shall neglect or refuse to obey any reasonable directions as to infectious diseases as shall be directed by the State Board of Health shall be liable, upon conviction in any court having competent jurisdiction, to be fined in a sum not less than twenty-five (25) dollars, or more than one hundred (100) dollars, and shall become disqualified from holding the office of a member of the Board of Health.

SEC. 11. When any Local Board of Health are of the opinion that the cleansing and disinfection of any house, building, car, vessel or vehicle or any part thereof, and of any articles therein likely to retain infection, would tend to prevent or check infectious diseases, it shall be the duty of such authority to give notice in writing to the owner or occupier of such house, vessel or vehicle, or part thereof, requiring him to cleanse and disinfect such house, vessel or vehicle and the said articles within a time specified in said notice. If the person to whom notice is so given fails to comply therewith, he shall be liable to a fine of not less than twenty-five (25) dollars nor more than one hundred (100) dollars for every day during which he continues to make default, and said Board shall cause such house, vessel or vehicle and articles to be cleansed and disinfected, and may recover the expenses incurred, and said fine and costs of prosecution in civil action before any justice of the peace or court having jurisdiction in like cases, which sum when recovered shall be placed to the credit of a special fund for the purpose of said Local Board of Health [to be used] by said Board for general expenses. *Provided*, that where the owner or occupier of any such house, vessel or vehicle is from poverty or otherwise unable in the opinion of said Local Board effectually to carry out the requirements of said Board in said notice, such authority may, without enforcing such requirements on such owner or occupier, with his consent, cleanse and disinfect such premises and articles and defray the expenses thereof.

SEC. 12. Any Local Board [may direct the destruction of any bed or bedding, clothing, carpets or other articles which have been exposed to infection from contact with infected persons or articles, and may allow compensation for the same, or may provide a proper place, with all necessary apparatus and attendance for the disinfection of such articles and may cause any articles brought for disinfection to be disinfected thereby, and said Board may provide and maintain when necessary, a carriage or carriages suitable for the conveyance of such

articles or of persons suffering under any infectious disorder, and may pay the expense of conveying therein any person so suffering to a hospital or other place of destination.

SEC. 13. Where any suitable hospital or place for the reception of the sick is provided within the district of any Local Board, or within a convenient distance of such district, any person who is suffering from any dangerous infectious disorder and is without proper lodging or accommodation, or lodged in a room occupied by more than one (1) family, or is on board any vessel, cars or other vehicle, may on a certificate signed by a qualified medical practitioner or the executive officer of said Board, and with the consent of the superintending body of such hospital or place, be removed by order of any justice to such hospital or place at the cost of the local district; and any person so suffering, who is lodged in any common lodging or boarding house, may, with the like consent and on a like certificate, be so removed by order of the Local Board. An order under this section may be addressed to such constable or officer as the justice or local authority making the same may think expedient, and any person who wilfully disobeys or obstructs the execution of said order shall be liable to a fine not exceeding fifty dollars (\$50), to be recovered on criminal complaint, and the sum so recovered shall be paid over to said Board for general expenses thereof.

SEC. 14. The State Board of Health may, by order, require any two (2) or more Local Boards to act together for the purposes of the provisions of this act, for the prevention of epidemic diseases.

SEC. 15. When any person coming from abroad, or residing in any town, village, borough or city within this state, is infected, or lately has been infected, with the small pox or other contagious disease dangerous to the public health, the board of health of the town, village, borough or city where such sick or infected person is, may immediately cause such person to be removed to a separate house, if it can be done without danger to his health and shall provide for such person or persons, nurses, medical attendance and other necessaries, which shall be a charge in favor of such town, village, borough or city upon the person so provided for, his parents, guardian or master, if able; otherwise upon the county in which he has a legal settlement, or upon the state if such person be a non-resident of the state, and has no property within the state, in which latter case the bills for such expenses shall be paid only after being audited and approved by the State Board of Health and by the Governor, and said bill shall be allowed only on condition that the Local Board of Health shall have promptly, on the appearance of such disease, notified the State Board of Health thereof, and shall have followed the instructions and regulations of said State Board given with respect to the care and expense in the case or cases in reference to which said bills were incurred, and further shall file satisfactory evidence to said State Board that such person or persons were non-residents of the state and have no property within the same. The town, village, borough or city, as the case may be, may recover in a civil action against the person or persons, or the county chargeable under this section.

SEC. 16. If such infected person cannot be removed without danger to his health, the Board of Health shall make provisions as directed in the preceding section for such person in the house where he may be and in such case they may cause the persons in the neighborhood to be removed, and (may take such other measures as they) may deem necessary for the safety of the inhabitants.

SEC. 17. When a disease dangerous to the public health breaks out, the board shall immediately provide such hospital or place of reception for the sick and infected as is judged best for their accommodation, and the safety of the inhabitants, which shall be subject to the regulations of the Board; and the Board may cause any sick and infected persons to be removed thereto, unless his condition will not admit of such removal without danger to his health, in which case the house or place where he remains, shall be considered as a hospital and with all its inmates, subject to the regulations of the Board.

SEC. 18. (It) shall be the duty of all Local Boards of Health, whenever they are informed that there is a case of small-pox, scarlet fever, diphtheria or other infectious or contagious disease within the territory over which it has jurisdiction, to immediately examine into the facts of the case, and if the disease appears to be of the character above specified, they shall adopt such quarantining and sanitary measures as may in their judgment tend to prevent the spread of said disease in its locality, subject to be modified by the State Board of Health, and shall immediately notify the Secretary of said State Board, of the appearance of such disease and the measures adopted by said Local Board in relation thereto.

SEC. 19. And said Boards of Health shall have power to forbid, by notices posted upon the entrances to premises where there may be a patient sick with such disease, any person, except the medical attendants and spiritual advisers, from going to or leaving said premises without their permission, or carrying or causing to be carried, any material whereby said disease may be conveyed, until after said disease has abated and the premises, dwelling and clothing have been rendered free from disease by such disinfecting means as the Board may direct; and if said Board shall be informed that the above, or any reasonable or sanitary measures which they have adopted and made public, is or has been violated, then the said Board may cause said offender against this act to be apprehended and brought before an officer having jurisdiction; and said offender shall, upon conviction, be liable to a fine in the sum of not less than five dollars (\$5) nor more than twenty-five dollars (\$25) for any violation under this act. Any member of any Board of Health who shall neglect his duties under the provisions of this act shall be liable, upon conviction in a court having competent jurisdiction, to be fined in a sum not less than twenty-five dollars (\$25) nor more than one hundred dollars (\$100) for the first offense; and for conviction for violation of this act the second time, shall, in addition to the fines already provided, become disqualified from holding the office of, or to which is attached the duties of a member of a Board of Health.

**SEC. 20.** All fines collected under this act shall be placed to the credit of a special fund of the city, village or town in which the offense is committed for the use and expenses of said Board. That every physician shall report to the Local Board of Health, in writing, every person having a contagious disease, and the state of his or her disease, and his or her place of dwelling, and name if known, which such physician has prescribed for or attended for the first time since having a contagious disease, or since the discovery of the same to be contagious, during any part of the preceding twenty-four (24) hours; but not more than two (2) reports shall be required in (1) week concerning the same person; but every attending physician thereto must see that such report is or has been made by some attending physician.

**SEC. 21.** That it shall be the duty of each and every practicing physician in this state to report in writing to the Local Board of Health the death of any of his patients who shall have died of contagious or infectious disease, within twenty-four (24) hours thereafter, and to state in such report the specified [specific] name and type of such disease.

**SEC. 22.** That every keeper of any private house, boarding-house or lodging-house, and every inn keeper and hotel keeper shall, within twenty-four (24) hours, report in writing to the Local Board of Health the same particulars required of any physician in the preceding section concerning any person being at any of the aforesaid houses and hotels, and attacked with any contagious disease dangerous to the public health.

**SEC. 23.** That it shall be the duty of every person knowing of any person sick of any contagious disease dangerous to the public health, and the duty of every physician hearing of any such sick person, who he shall have reason to think requires the attention of the Local Board, to at once report to facts to the Board in regard to the disease, condition and dwelling place or position of such sick person.

**SEC. 24.** That no person shall within the limits of any town, city or village within this state, without a permit from the Local or State Board of Health, carry or remove from one (1) building to another, or from a vessel to the shore, or any railway cars, any person sick of any contagious disease, or the body of any person having died of contagious disease; nor shall any person, by any exposure of any individual sick of any contagious disease, or of the body of such person, or by any negligent act connected therewith, or in respect to the care and custody thereof, or by a needless exposure of himself, cause, or contribute to or promote the spread of disease from any such person or from any dead body.

**SEC. 25.** That every person being the parent or guardian, or having the care, custody or control, of any minor or other person, shall, to the extent of any means, power or authority of said parent, guardian or other person, that could properly be used or exerted for such purpose, cause and procure such minor or person under control to be so promptly, frequently and effectively vaccinated that such minor or individual should not take, or be liable to take the small pox.

**SEC. 26.** That no principal, superintendent or teacher of any school, and no parent, master or guardian of any child or minor, having the power and authority to prevent, shall permit any child or minor, having scarlet fever, diphtheria, small-pox or any dangerous, infectious or contagious disease, or any child residing in any house in which any such disease exists, or has recently existed, to attend any public or private school until the Board of Health of the town, village, borough or city shall have given its permission therefor; nor in any manner to be unnecessarily exposed, or to needlessly expose any other person to the taking or to the infection of any contagious disease.

**SEC. 27.** That no person shall allow to be retained unburied the dead body of any human being for a longer time than four (4) days, or where death has been caused by a contagious disease for a longer time than twenty-four (24) hours, after the death of such person, without a permit from the Local Board of Health, which permit shall specify the length of time during which such body may be retained unburied; and when death has been caused by a contagious disease the body shall, if directed by said Board, be immediately disinfected in such a manner as may be directed by said Board and enclosed in a tightly sealed coffin, which shall not thereafter be opened, and the funeral of such person shall be strictly private and in the removal thereof for burial or otherwise hearse or such other vehicles as may be authorized by said Board only shall be employed.

**SEC. 28.** Said Boards of Health may employ all such persons as shall be necessary to carry into effect the provisions of this act and the regulations duly established by said Boards as herein provided, and may fix their compensation. The said Boards shall have power to employ physicians and provide necessaries for persons in cases of poverty, and generally to pay such expenses as are necessarily incurred by them in taking precautions which they may deem necessary to the public health.

**SEC. 29.** All expenses so incurred for the control of infectious diseases, etc., by any Town, or Village Board of Health, shall thereafter be authorized by the county commissioner of the district wherein such town or village is situate, and when so authorized shall be audited by the county commissioners, and when so audited, paid out of the county treasury by order of the treasurer, drawn by the county auditor, and paid out of the general revenue fund of the county, all other claims against the county are paid. All expenses incurred by any City Board of Health, shall, in the first instance, be borne by and paid out of the city treasury. The proper authorities of said city shall certify the amount required to reimburse said city to the county auditor at the time of certifying other taxes, and such auditor shall extend on the tax list of the county a tax sufficient to pay the amount so certified, which tax shall be collected as other taxes and paid over to the treasurer of such city. As amended by Chap. 178, Laws of 1889. Approved April 21, 1889.

**SEC. 30.** Any person who shall willfully violate any of the provisions of this act, or of any regulations duly made and published, by any of the Boards of Health herein mentioned—the penalty for which is not herein specifically provided for—shall be guilty of a misdemeanor; and upon conviction thereof, shall be subject to a fine not to exceed one hundred (100) dollars, or imprisonment not to exceed thirty (30) days, or both such fine and imprisonment. All amounts so collected shall be paid to the town, village or city treasurer and placed to the credit of a special fund for the purposes and expenses of the said Local Board of Health.

**SEC. 31.** This act shall take effect and be in force from and after its passage; and all acts and parts of acts inconsistent with this act are hereby repealed.

Approved March 3, 1889.

**AN ACT FOR AN ACT TO PREVENT THE SPREAD OF CONTAGIOUS OR INFECTIOUS DISEASES AMONG "CATTLE," HORSES AND OTHER DOMESTIC ANIMALS.—CHAPTER 200, GENERAL LAWS OF 1885.**

*Be it enacted by the Legislature of the State of Minnesota:*

**S**ECTION 1. The Local Board of Health of towns, villages and cities, in case of existence among horses, or any other contagious or infectious disease among domestic animals, shall cause the animals in their respective towns, villages or cities, which are infected, or which have been exposed to infection, to be secured or collected in some suitable place or places within their respective towns, villages or cities, and kept isolated; and when taken from the possession of their owners one-fifth (1-5) of the expense of their maintenance shall be paid by the town, village or city wherein the animal is kept, and four-fifths (4-5) by the State; such isolation to continue as long as the existence of such disease or other circumstances may render it necessary.

SEC. 2. The said Local Boards of Health, when any such animal is adjudged by a veterinary surgeon or physician, by them selected, to be infected with any contagious or infectious disease, may, in their discretion, order such diseased animal to be forthwith killed and buried at the expense of such town, village or city.

SEC. 3. The said Local Boards of Health may cause all such animals that have been within the State for six (6) months next preceding the adjudication mentioned in section two (2) to be appraised by three (3) competent and disinterested men under oath, at the value thereof at the time of the appraisement, and in making such appraisement the appraisers shall take into consideration the fact of the existence of such disease, and the amount of the appraisement shall be paid as provided in section one (1), except as provided in section fifteen (15) of this act.

SEC. 4. The said Local Boards of Health may, within their respective towns, villages and cities, prohibit the departure of animals from any inclosure, or exclude animals therefrom.

SEC. 5. The said Local Boards of Health may make regulations in writing to regulate or prohibit the passage from, to or through their respective towns, villages or cities, or from place to place within the same, of any cattle or other domestic animals, and may arrest and detain, at the cost of the owners thereof, all animals found passing in violation of such regulations, and may take all necessary measures for the enforcement of such prohibition, and also for preventing the spread of any disease among the animals to their respective town, village or city, and the immediate vicinity thereof.

SEC. 6. Such regulations shall be recorded upon the records of their respective towns, villages and cities, and shall be published in such towns, villages and cities, in such manner as may be provided in such regulations.

SEC. 7. Any person disobeying the orders of said Local Boards of Health, made in conformity with the preceding provisions, or driving or transporting any animals contrary to the regulations made, recorded and published as aforesaid, shall be punished by a fine of not less than one hundred (100) dollars, nor exceeding five hundred (500) dollars, or by imprisonment of not less than thirty (30) days, nor exceeding one (1) year.

SEC. 8. Whoever knows or has reason to suspect the existence of any such disease among the animals in his possession, or under his care, shall forthwith give notice thereof to the said Local Boards of Health of the town, village or city where such animals are kept, and for failure so to do, shall be punished by a fine of not less than fifty (50) dollars, nor exceeding five hundred (500) dollars, or by imprisonment of not less than thirty (30) days or more than (1) year.

SEC. 9. Any member of any Local Board of Health who neglect or refuse to carry into effect the preceding provisions shall be punished by a fine of not less than one hundred (100) dollars, nor more than five hundred (500) dollars for each day's neglect.

SEC. 10. When the State Board of Health make and publish any regulations concerning the extirpation, care or treatment of animals infected with, or which have been exposed to, any contagious disease, such regulations shall supersede those made by the Local Boards of Health; and said Local Board of Health shall carry out and enforce all orders and directions of the State Board of Health to them directed.

SEC. 11. The State Board of Health, shall have all the power and authority herein conferred upon Local Boards of Health.

SEC. 12. The Local Boards of Health, within twenty-four (24) hours after they have notice that any domestic animals in their respective towns, villages and cities are infected with or have been exposed to any such disease, shall give notice thereof in writing to the State Board of Health.

SEC. 13. The State Board of Health may make all necessary regulations for the quarantine of such animals, and extirpation of such disease, and may direct Local Boards of Health to enforce and carry into effect all such regulations as may from time to time be made for that end; and any member of any Local Board of Health who refuses or neglects to enforce or carry out any regulation of the State Board of Health shall be punished by a fine of not less than one hundred (100) dollars nor more than five hundred (500) dollars for every offense.

SEC. 14. The State Board of Health, when, in their judgment the public requires it, may cause to be killed and buried any domestic animals which are infected with, or have been exposed to, such disease; and except, as provided in the following section, shall cause such animals to be appraised in the manner provided above, and the appraised value of such animals shall be paid, one-fifth (1-5) by the town, village or city in which such animals were kept, and the remainder by the State.

SEC. 15. In all cases of farcy or glanders, the State Board of Health, having condemned the animal infected therewith, shall cause such animal to be killed, without an appraisement or compensation to the owner thereof, but may pay the owner an equitable sum for the killing and burial thereof.

SEC. 16. Any person who fails to comply with the regulation made, or an order given by the State Board of Health, shall be punished by fine not exceeding five hundred dollars (\$500) or by imprisonment not exceeding one (1) year.

SEC. 17. All appraisements made shall be in writing and signed by the appraisers and certified by the Local Boards of Health or State Board of Health respectively, to the governor and to the treasurer of the several towns, villages and cities wherein the cattle appraised were kept.

SEC. 18. The State Board of Health may examine, under oath, all persons believed to possess knowledge of material facts concerning the existence or dissemination or danger of dissemination of disease among domestic animals; and for this purpose shall have all the power vested in justices of the peace to take depositions and to compel witnesses to attend and testify. All costs and expenses incurred in producing the attendance of such witnesses shall be

certified by the State Board of Health and paid from the treasury of the State upon being certified to and approved by the governor.

SEC. 19. Whenever animals are exposed to contagious diseases or killed by an order of the State Board of Health, and upon a post-mortem examination are found to have been entirely free from disease, the State Board of Health shall cause the same to be sold under their direction, first giving to the purchaser notice of the facts, and if said purchaser, or any other person, shall sell said slaughtered animals, or any part thereof, he shall in like manner give notice to the parties to whom such sales are made, and the proceeds of the sales, made by order of the State Board of Health, shall be applied in payment of the appraised value of said animals.

SEC. 20. Whoever violates any of the provisions of the preceding section shall be punished by fine not exceeding one hundred dollars (\$100) and the cost of prosecution.

SEC. 21. The State Board of Health shall keep a full record of their doings and report the same to the legislature unless sooner required by the governor.

SEC. 22. The State Board of Health may, by order, require any two (2) or more Local Boards to act together for the purposes of this act.

SEC. 23. The sum of three thousand dollars, (\$3,000.) or so much thereof as necessary is hereby annually appropriated for the payment of expenses incurred by the State in enforcing this act; said expenses to be approved by the State Board of Health and by the governor.

SEC. 24. This act shall take effect and be in force from and after its passage.

Approved March 7, 1855.

**AN ACT TO REGULATE OFFENSIVE TRADES AND EMPLOYMENTS—CHAP. 222, LAWS OF 1855.**

*Be it enacted by the Legislature of the State of Minnesota:*

SECTION 1. The Board of Health of each town, village or city in this State, shall, from time to time, assign certain places within such town for the exercise of any trade or employment which is a nuisance or hurtful to the inhabitants, or dangerous to the public health, or the exercise of which is attended by noisome or injurious odors, or is otherwise injurious to the estates of such inhabitants; and may prohibit the exercise of such trade or employment in places not so assigned. Said Board may also forbid such exercise within the limits of the town or particular locality thereof. All such assignments shall be entered in the records of the town and may be revoked when said Board shall think proper.

SEC. 2. It shall not be lawful for any person or corporation to exercise within any town, village or city, any trade or employment mentioned in section one (1) of this act, without having first obtained from the Board of Health of such town, village or city, permission so to do, and the assignment provided in said section; and any person or corporation violating the provisions of this section shall forfeit and pay the sum of fifty dollars (\$50) for each and every day that any such trade or employment is exercised or carried on, to be recovered in any court having jurisdiction thereof, and sitting within the county where any such trade or employment is exercised or carried on; such action shall be commenced and prosecuted by such Board in its name and for its benefit.

SEC. 3. When any assignment mentioned in section one (1) hereof shall be revoked, said Board shall serve upon the occupant, corporation or person having charge of the premises where such trade or employment is exercised a written notice of such revocation. If the person or corporation upon whom such order is served, for twenty-four (24) hours after such service, refuses or neglects to obey the same, said Board shall take all necessary measures, by injunction, or otherwise, to prevent such exercise; and the person or corporation so refusing, or neglecting, shall forfeit and pay the sum of one hundred dollars (\$100) for each and every day that such trade or employment shall be exercised after the service of such notice, to be recovered in the manner and by the party and for the benefit as provided in section two (2) hereof.

SEC. 4. Any person or corporation aggrieved by any order of such Board, may appeal therefrom to the district court of the county in which such trade or employment is exercised. Such appeal shall be taken by the filing of such aggrieved person or corporation, within five (5) days after the service of such order, in the office of the clerk of said court, of a notice of such appeal, together with a bond in the sum of not less than five hundred (500) dollars, with two (2) or more sureties, to be approved by the judge of said court, conditioned for the prosecution of such appeal to judgment and for the payment of all costs and expenses that may be awarded against such appellant, and by the service of a copy of such notice and bond upon such Board. If such appeal be taken within twenty (20) days next before the time appointed for holding a general term of said court within said county, the same shall be heard at such time as other civil causes, and at the request of either party, shall be tried by jury. If such appeal is taken more than twenty (20) days before any such term, the judge shall, by order, appoint a time and place for the hearing of such appeal, and shall, if the appellant demand a trial by jury, direct the sheriff of such county, to summon a jury of twelve (12) persons having the qualifications of jurors, to appear at the time and place named in said order, to serve as jurors in said cause. Any person so summoned may be challenged as in civil actions. If a sufficient number of such persons so summoned do not appear, the court shall require the summoner to be called as in other cases, and said appeal shall be tried as other civil causes. During the pendency of such appeal, such trade or employment shall not be exercised contrary to the order of said Board; and upon the violation of any such order the appeal shall forthwith be dismissed. Upon the return of the verdict of the jury the court may either alter or amend the order of the Board or affirm or amend it in full, to conform to such verdict. If the matter be tried by the court it shall have and exercise the same power.

SEC. 5. Any person injured, either in his comfort or the enjoyment of his estate, by the exercise of any such trade or employment may have and maintain an action for the damages sustained thereby.

SEC. 6. When it appears on a trial before the district court for the proper county, upon a complaint made by any person that any place or building assigned as provided in section one (1) of this act has become a nuisance by reason of offensive smells or exhalations proceeding from the same, or is otherwise hurtful or dangerous to the neighborhood, or to travelers, said court may revoke such assignment, and prohibit the further use of such place or building for the exercise of either of the aforesaid trades or employments, and may cause such nuisance to be removed or prevented.

SEC. 7. When any building or premises within any city, village or town are occupied or used for the exercise of any trade or employment aforesaid, the State Board of Health shall, upon application made to it for that purpose, appoint a time and place for hearing the parties, and give notice of not less than ten (10) days thereof to the complainant and the party against whom such application is made, and after such hearing may, if in its judgment the public health or the public comfort and convenience so require, order any person to desist and cease

from further carrying on such trade or occupation in such building or premises; and any person or corporation thereafter continuing to occupy such building or premises, shall forfeit and pay the sum of one hundred (100) dollars for every day of such occupancy or use, to be recovered in any court having jurisdiction thereof by action commenced and prosecuted in the name of the Board of Health of such city, village or town, and for its use and benefit. Any person or corporation aggrieved by any such order, may appeal therefrom, and said appeal shall be taken, prosecuted and determined in the same manner provided in section four (4) of this act. During the pendency of such appeal, such trade or employment shall not be exercised contrary to the orders of said State Board, and upon the violation of [any] such order, the appeal shall forthwith be dismissed.

SEC. 8. The district court, or the judge thereof, may issue an injunction or other proper writ, to enforce the orders of said State Board, issued under the provisions of this act.

SEC. 9. Nothing in this act contained shall be construed as to impair any other remedies which may exist in cases of nuisance.

SEC. 10. This act shall take effect and be in force from and after its passage.

Approved March 7, 1885.

## **AN ACT TO PREVENT THE POLLUTION OF RIVERS AND SOURCES OF WATER SUPPLY.—CHAPTER 225, LAWS OF 1885.**

*Be it enacted by the Legislature of the State of Minnesota.*

**S**ECTION 1. No sewage, drainage or refuse or polluting matter of such kind as either by itself or in connection with other matter will corrupt or impair the quality of the water of any spring, well, pond, lake, stream or river for domestic use, or render it injurious to health, and no human or animal excrement shall be placed in or discharged into, or placed or deposited upon the ice of any pond, lake, stream or river, used as a source of water supply by any town, village or city; nor shall any such sewage, drainage, refuse, or polluting matter or excrement be placed upon the banks of any such pond, lake, stream or river, within five miles above the point where such supply is taken, or into any feeders or the banks thereof, of any such pond, lake, stream or river;

SEC. 2. The State Board of Health shall have the general supervision of all springs, wells, ponds, lakes, streams or rivers used by any town, village or city as a source of water supply, with reference to their purity, together with the waters feeding the same, and shall examine the same from time to time, and inquire what, if any, pollution exist, and their causes. In case of a violation of any of the provisions of section one (1) of this act, said Board may appoint a time and place for hearing parties to be affected, and shall give due notice thereof, as hereinafter provided, to such parties, and after such hearing, if in its judgment the public health requires it, may order any person or corporation, or municipal corporation to desist from the acts causing such pollution, and may direct any such person or corporation to remedy the pollution, or to cleanse or purify the polluting substance, in such a manner and to such degree as shall be directed by said Board, before being cast or allowed to flow into the waters thereby polluted, or placed or deposited upon the ice or banks of any of the bodies of water in the first section of this act mentioned. Upon the application of the proper officers of any town, village or city, or of not less than legal voters of any such town, village or city, to said State Board, alleging the pollution of the water supply of any such town, village or city, by the violation of any of the provisions of this act, said State Board shall investigate the alleged pollution, and shall appoint a time and place, when and where it will hear and examine the matter, and shall give notice of such hearing and examination to the complainant, and also to the person or corporation, or municipal corporation alleged to have caused such pollution, and such notice shall be served not less than ten (10) days prior to the time so appointed, and shall be served in the same manner that now is, or hereafter may, be by law provided for the service of a summons in a civil action in the district court. Said Board, if in its judgment any of the provisions of this act have been violated, shall issue the order or orders already mentioned in this section.

SEC. 3. The district court, or the judge thereof, may, upon the complaint of said State Board, or of the proper authorities of any town, city or village whose sources of water supply shall be so polluted, issue an injunction to enforce the orders of said State Board.

SEC. 4. Such orders of the State Board shall be served up on the persons, corporations, or municipal corporations found to have violated any of the provisions of this act, and any party aggrieved thereby, shall have the right to appeal to the district court of the county in which is situated the town, village or city whose source of water supply is found to have been polluted, and such aggrieved party shall have the right to a trial by jury in the same manner as in a civil action in said court. During the pendency of the appeal, the pollution against which the order has issued, shall not be continued contrary to the order of the State Board, and upon the violation of the order the appeal shall forthwith be dismissed.

SEC. 5. Any person, corporation or municipal corporation desiring to appeal from any such order of the State Board, shall, within thirty (30) days after the service upon him or it of a copy of such order, file in the office of the clerk of the district court of the proper county, a notice of such appeal, together with a bond in the sum of not less than two thousand (2,000) dollars, with two (2) sureties, to be approved by the judge of said court, conditioned for the prosecution of such appeal to judgment, and for the payment of all the costs and disbursements that may be adjudged against him or it therein, and shall, within three (3) days after such filing, serve a copy of such notice and bond upon the Secretary of said Board; and said Secretary shall, within ten (10) days thereafter, deliver such copies so served upon him to the mayor or other chief executive officer of any such city, village or town, whose source of water supply has been found to have been so polluted.

SEC. 6. Water boards, water commissioners, water companies, and the proper officers of any city, village or town, making use as a source of water supply, of any well, spring, pond, lake, stream, river, reservoir or well, within, or partly within, this State, and distributing the waters thereof for public, domestic and general uses, shall, from time to time, and whenever required by said State Board, make returns to said Board, upon blanks to be furnished by it, of such matters as may be required by said Board and called for by such blanks, and any such water board, water commissioners, water company, or officers of any city, village or town, who shall, for the space of thirty (30) days after being furnished with such blanks, fail or neglect to make any such report so required, shall, for each and every such neglect or failure, forfeit and pay the sum of one hundred (100) dollars, for the use of the Local Board of Health, or the proper officers acting as such, of the city, town or village where such delinquent has its principal office. Said State Board shall, in the name of the State, prosecute in the district court of the proper county an action for the recovery of the penalty or forfeit herein imposed.

SEC. 7. This act shall take effect and be in force from and after its passage.

Approved March 7, 1885.

# An Act to Provide for the Collection of Vital Statistics.

*Be it enacted by the Legislature of the State of Minnesota.*

**S**ECTION 1.—The Clerk of each town, and the Health Officer of each village, borough or city in this State, shall obtain and register the following facts concerning the births and deaths occurring therein, separately numbering and recording the same in the order in which he obtains them, designated in separate columns, viz: In the registry of births, the date of birth, the name of the child (if it have any), the sex and color of the child, the names and places of birth of the parents, and the date of the record; in the registry of deaths, the date of death, [the name of the deceased,] the sex and color, the condition, whether single, widowed or married, [the age, place of birth,] the names and places of birth of the parents, the disease or cause of death, and the date of the record. The County Auditor of each County shall furnish each clerk or Health Officer within his County, at the expense of the County, a book in which to register the facts concerning the births and deaths a. above provided. Provided, however that in cities of over 100,000 inhabitants, where the duties hereby imposed upon the Health Officer, have heretofore been imposed upon the City Clerk, the latter shall continue to perform the same and receive the compensation therefor.

**SEC. 2.**—Parents shall give notice to such Clerk or Health Officer, of the births and deaths of their children; every householder shall give like notice of every birth and death happening in his house; the oldest person, next of kin, shall give such notice of the death of his kindred; the keeper, or other proper officer, of every workhouse, poorhouse, reform-school, jail, prison, hospital, asylum, or other public or charitable institution, shall give like notice of any birth or death happening among the persons under his charge. Whoever neglects or refuses to give such notice for the period of ten (10) days after the occurrence of a birth or death, shall forfeit a sum not exceeding twenty (20) dollars, to be collected as other fines are collected by law.

**SEC. 3.**—Any physician having attended a person during his last illness, shall, within ten (10) days after the decease of such person, furnish for registration to such Clerk, or Health Officer, a certificate of the duration of the last illness, the name of the deceased, his age, the disease of which the person died, and the date of his decease. And any physician or midwife having attended a case of confinement, shall, within ten (10) days thereafter, furnish for registration to said Clerk or Health Officer, a certificate of the date of birth, sex and color of the child, with the names, dates and places of birth of the parents. If any physician or midwife neglects to make such certificate, he shall forfeit the sum of twenty-five (25) dollars, to be collected as other fines are collected by law.

**SEC. 4.**—Such Clerk, or Health Officer, shall, on or before the fifth (5) day of each month, transmit to the Secretary of the State Board of Health and Vital Statistics, upon blanks to be furnished by said Board, a certified copy of the registry of births and deaths which have occurred within such town, village, borough or city, during the calendar month immediately preceding. For obtaining, registering and returning the facts herein required, such Clerk or Health Officer shall be entitled to receive from the County Treasury of his County, twenty-five (25) cents for each birth or death so obtained, registered and reported. And for neglect to perform such duties as herein required, he shall forfeit a sum not exceeding fifty dollars for each offense, to be collected as other fines are collected.

**SEC. 5.**—It shall be the duty of the State Board of Health and Vital Statistics, to prepare and furnish to such Clerks and Health Officers, suitable blanks and instructions for the making of the returns herein provided for. And the Secretary of said State Board of Health and Vital Statistics, shall, annually, on or before the fifteenth (15) day of January, of each year, transmit to the Clerk of the District Court, of each County, all of the said returns received by said Secretary from such Clerks or Health Officers, in such County during the year ending on the last day of the preceding December, together with his certificate showing the aggregate number of births and deaths so reported in such year by each such Clerk and Health Officer.

**SEC. 6.** The said Clerk of the District Court shall thereupon file the said returns so to him transmitted, in his office, and shall also issue to each such Town Clerk and Health Officer a certificate showing the amount due to them respectively, for the obtaining, registering and reporting the births and deaths aforesaid, as the same may appear from the said certificate of said Secretary of the State Board of Health and vital statistics. For all his said services, such Clerk of the District Court shall be entitled to receive from the County Treasurer of his respective county for recording such births and deaths, and making such abstract thereof as he may by law be required to make the sum of ten (10) cents for each such birth or death. And for his failure to perform any of the duties herein provided for such Clerk of the District Court, shall forfeit the sum of fifty (50) dollars, to be collected as other fines are collected.

**SEC. 7.**—The County Auditor of each County, upon the presentation to him of the aforesaid certificate of the Clerk of the District Court of his County, shall issue and deliver to each Clerk and Health Officer, respectively, his warrant upon the County Treasurer for the amount in said certificate stated to be due to such Clerk or Health Officer, and the County Treasurer upon the presentation of such warrant, shall pay the same to the person entitled thereto out of the general funds of the County Treasury.

**SEC. 8.**—To cover all Clerk hire, stationery and incidental expenses of the State Board of Health and Vital Statistics, under this act, the sum of one thousand (1,000) dollars shall be and hereby is annually appropriated.

**SEC. 9.**—Sections 81, 82, 83, 84 and 85 of Chapter six (6) of General Statutes of 1878, and all other acts and parts of acts inconsistent with this act, are hereby repealed.

**SEC. 10.**—This act shall take effect and be in force from and after its passage.

Approved March 8th, 1887.

## THE MAY SANITARY INSPECTION OF CITIES, VILLAGES AND TOWNSHIPS.

The law requiring this inspection reads as follows :

"He (the Health Officer) shall make once a year in the month of May, and oftener if necessary, a thorough sanitary inspection of said town, village, borough or city, and present a written report of such inspection at the next meeting of the Board of Health, and he shall forward a copy of said report as soon as rendered to the State Board of Health." Chap. 4, Laws of 1885, Sec. 2.

*The essential fact of all sanitary work and methods, in any centre of population, whether a family or many families, in township or city, is the constant production, and presence, of decomposing animal matter, where it is a perpetual menace to the purity of the air, water, and food supply of men, women and children, and make them hot-beds for the culture of the germs of Cholera and Typhoid Fever.*

Outside the waste products of offensive trades and manufactures, the dangers from this organic matter become poisonous, are centered in the common receptacles of such matter, the privy, the cess-pool, the manure heap, and the kitchen slop and garbage pile. Common experience, and the scientific study of the direct relation of these things to disease, prove them to stand, often in the relation of cause, and always to be important. They are, themselves, easily accessible, and may be prevented or regulated.

The individual owner follows the almost invariable rule, if not prevented, i. e., as soon as one "hole in the ground" is full he fills, or rather covers it, and digs another alongside proceeding as before, and as for the cellar cleans it when he has to, or is compelled to do it. Most other sources of danger, to be discovered by the May inspection, are directly related to these, and so to find, suppress or regulate them is the first object of the survey.

A very common mistake and not confined to non-professional people either, is to suppose, or act as if they believed, that clean streets and alleys were enough to prove the village or city where they are, to be clean. Streets and alleys may be clean while houses and lots adjoining are filthy with the abominations above referred to. These facts the sanitary service must not ignore or forget, nor permit the people to do so either. To get them into available shape thorough and systematic inspection is necessary.

(A scheme for such inspection has already been printed and distributed for two or three years with a diagram of a practicable and easy method of recording results for future reference, and to note on the record action taken and changes affected. This will be sent to any one who asks for it. The Health Officer or Chairman who uses it will find his future labor in this direction to consist of a review of past work in the light of another year's experience, and that it systematizes his efforts in a very satisfactory way, so that nothing essential escapes him.)

It is important that this record be made as complete as possible at once. Suppose an outbreak of disease in any locality so surveyed, a moment suffices to give the Health Officer its present sanitary condition, and to enable him to judge what to do; how the disease is likely to affect other districts, if infectious; and he is able to lay out his plan for control, promptly and with reasonable assurance of success.

*Fore-knowledge of sanitary condition is the most important of the local factors of disease prevention or control, and is therefore the first duty of Boards of Health.*

THE MOST IMPORTANT POINTS TO BE LOOKED AFTER IN THE ANNUAL INSPECTION.

1. The number, construction, condition and location of all privies, cess-pools or other collections of fluid or semi-solid filth.
2. The location and character of all other collections of refuse, animal or vegetable matter, now, or likely to become, a nuisance or cause of sickness.
3. The location and construction of wells and cisterns; their condition, and that of other sources of water supply, for public or family use; the source of the water, and in case of disease, or reasonable suspicion of its qualities, its examination. Springs and wells are to be studied, particularly with reference to 1 and 2.
4. The character, capacity, construction and efficiency of all drains, sewers, or other apparatus or methods of disposing of slops and other fluid refuse in the absence of public sewers.
5. The condition of lots (inhabited or not,) streets and alleys, as respects drainage and cleanliness.
6. The location of all trades or employments, "dangerous to the public health, or a nuisance; or attended by noisome or offensive odors, or otherwise injurious to the estates of the inhabitants." These trades are chiefly butcher shops, slaughter houses, stock barns, sheds, or yards, hog pens, dairies and creameries. (Chapter 222, Laws 1885.) Please report particularly, the number, character, and condition of these trades. The condition of stock yards to be carefully investigated.
7. The care and diseases of domestic animals, the condition of the barns, sheds, or pens, occupied by them, as affecting their health, and any other facts bearing upon public health, for example, milk supply, condition for slaughter of animals intended therefor, infectious disease. (Chapter 200, Laws 1885.) Look out carefully for any form of Tuberculosis in milch cows and report suspected cases.
8. The public or private disposal of night soil, garbage, offal or other vegetable or animal refuse.
9. The condition, purity and abundance of the public water supply.
10. The same facts as to the public sewer system.
11. The sanitary condition of buildings used for public assemblies, particularly school houses and places of amusement.
12. Sanitary condition of hotels, common boarding and tenement houses, hospitals, poor houses, jails, lockups, livery stables, railway station houses, and stock yards.
13. Stagnant pools, swamps or marshy lands adjacent to residences, or liable to affect, injuriously, the public health.
14. The condition of ponds, lakes or streams, used in common by two or more sanitary districts. In case cause for complaint is found it should be made first to the authorities of the district, and if not attended to to the State Board.
15. In case of cause for complaint against railroads the Local Board should submit, in writing, to the Local Agent such order as it finds necessary to make, just as to any other person. If not attended to report the order and evidence to the State Board.

Copies of this and all other circulars of this Board can be had by writing to the Secretary at Red Wing.

## The Health of the Children in the Schools.

An appeal to School Teachers founded on Vital Statistics and Experience.

A LARGE edition of the first memorandum on this subject has been distributed and there is a call for another on the part of a few county and city superintendents, and individual teachers. Some of the Local Boards of Health are awakening to the advantage of the aid of Teachers in dealing with infectious disease.

It is a curious fact that there is no class more difficult to reach effectually for this purpose than teachers. It seems to be the common impression among those governing State and denominational schools that their co-operation is a purely voluntary one to be determined by their own ideas of its need. To such and to hesitating Local Boards of Health doubtful of their right to demand this co-operation, the following excerpts from Chapter 132, Laws 1883, are submitted.

"SEC. 23. That it shall be the duty of every person knowing of any person sick of any contagious disease dangerous to the public health—who he shall have reason to think requires the attention of the Local Board (of Health), to at once report the facts to the Board in regard to the disease, condition and dwelling place or position of such sick person.

SEC. 24. That no person shall within the limits of any town, city or village within this state, without a permit from the Local or State Board of Health, carry or remove from one (1) building to another, or from a vessel to the shore, or any railway cars, any person sick of any contagious disease, or the body of any person having died of contagious disease; nor shall any person, by any exposure of any individual sick of any contagious disease, or of the body of such person, or by any negligent act connected therewith, or in respect to the care and custody thereof, or by a needless exposure of himself, cause, or contribute to or promote the spread of disease from any such person or from any dead body,

SEC. 25. That every person being the parent or guardian, or having the care, custody or control, or any minor or other person, shall, to the extent of any means, power or authority of said parent, guardian or other person, that could properly be used or exerted for such purpose, cause and procure such minor or person under control to be so promptly, frequently and effectively vaccinated that such minor or individual should not take, or be liable to take the small pox.

SEC. 26. That no principal, superintendent or teacher of any school, and no parent, master or guardian of any child or minor, having the power and authority to prevent, shall permit any child or minor having scarlet fever, diphtheria, small-pox or any dangerous, infectious or contagious disease, or any child residing in any house in which any such disease exists, or has recently existed, to attend any public or private school, until the Board of Health of the town, village, borough or city shall have given its permission therefor; nor in any manner to be unnecessarily exposed, or to needlessly expose any other person to the taking or to the infection, or any contagious disease."

If anyone ask why should school boards and teachers be held to this accountability, the following statistics supply part of the answer:

TABLE SHOWING MORTALITY BY SPECIFIED CAUSES AT ALL AGES, AND AT THE SCHOOL GOING AGES.—AVERAGES OF FIVE YEARS, (1887-91).

ANNUAL AVERAGE OF 5 YEARS:	Average Annual Mortality of all ages.	Average Annual Mortality 5 to 10 years.	Average Annual Mortality 10 to 15 years.	Average Annual Mortality 15 to 20 years.	Average Annual Mortality 5 to 20 years.	Per Cent. of Mortality at school-going age to total deaths from same cause at all ages.	Per Cent. of Deaths from specified causes to total deaths from all causes between 5 and 20 years.
Deaths from all causes, at ages, 14,408. Deaths from all causes between 5 and 20 years, 1,647—11.22 per cent.							
Tuberculosis.....	1,393	28	42	131	201	14.5	12.2
Diphtheria and Croup	1,041	321	112	39	472	45.3	28.6
Pneumonia.....	846	43	20	36	99	11.7	6.0
Typhoid fever.....	581	32	40	89	161	27.7	9.8
Bronchitis.....	339	9	2	4	15	4.4	.92
Scarlatina.....	210	53	11	5	69	32.8	4.2
Measles.....	170	16	8	10	34	20.0	2.07
Total.....	4,580	502	236	313	1,051	22.9	63.8

This table is founded upon a careful compilation of the returns of the last five years and relates to the diseases which have caused the greatest mortality at all ages, and more in detail, at the school-going age, the last divided into quinquennial periods. It brings out the fact that the danger of death by infectious disease as a whole, and by each leading affection of the class, is largely affected by the age of the victim, and therefore will be found to vary in schools of different grades, suggesting increased vigilance on the part of teachers. The first column of the table gives you an average of the eight diseases which cause the greatest mortality at all ages. In order of mortality—at all ages—tuberculosis leads and diphtheria is a close second, the others following in the order given, but between 5 and 20 years of age the mortality of diphtheria is double that of tuberculosis.

It is the mortality at the school-going age which concerns us now and the most striking fact brought out by the table is that the diphtheria; is six times as fatal as any other disease in the first class (children from 5 to 10 years of age); more than twice as fatal as any other in the second class (10 to 15 years); but not one-third as fatal as tuberculosis in the third class (15 to 20 years) and not half as fatal as enteric (typhoid) fever in the same class.

To state the facts in a professional way, teachers of primary schools should be on the look out for diphtheria, as 41.58% of all cases at all ages, occur between the ages of 5 and 10 years, while in the last class (15 to 20) but 3% of all deaths from this cause occur. These deaths at the school going ages together, are 45.3% of the total mortality of all ages from this cause.

Scarlet fever, though far behind, comes next in fatality among the first class, and pneumonia and bronchitis together cause the same mortality among them as scarlet fever.

It is worth your while to note too that the mortality from diphtheria at

the school-going age is 45.4% of the total mortality of that disease at all ages, enteric (typhoid) fever 27.7%, scarlet fever 32.8%, measles 20%, bronchitis and pneumonia 16.1%. Other facts of value will be found in the table but enough has been made to appear to prove the duty of the teacher in the attempt to diminish or prevent the spread of infectious disease.

But how? In this way: Apply to your Local Board of Health, or directly to the Secretary of the State Board at Red Wing for copies of the Memoranda upon Diphtheria, Enteric(Typhoid) Fever, Scarlatina, Measles, and the disposal of excreta, and read them all, but particularly the one which discusses the disease which happens to be prevailing, if any. They will be found to contain about all the information you need; should anything be lacking write directly to the Secretary, as above, who will give you a prompt reply. You will find that for prevention it is convenient to study diphtheria, scarlet fever, and measles together because they agree in being infectious in the secretions of the nose and mouth, and all but diphtheria in the eruption of the skin.

Inquire frequently of the Local Board of Health, and ask its executive officer to keep you informed of the presence of infectious disease. In country districts and small towns it sometimes happens that you will learn of sickness in the families of your children before the Local Board; in such cases give the Health Officer or the party acting as such, the name, residence and reported disease, that he may investigate. Should there be any difficulty in finding the proper officer or any lack of attention to reasonable requests, apply directly to the Secretary at Red Wing who will put you on the way to hearty co-operation. *In writing to him always give the name of village, city or township, and specify just what you want.* In the great majority of cases you will find every disposition on the part of your Local Board to help you, and thanks for your assistance.

*But it is not in emergency that your most effectual work can be done for your pupils and your own good health,* it is rather in the every day routine of the school life that your service as the Health Officer of a school is most useful. If you will come to understand this and its importance you will never pass an hour in school without a benificent use of your art. Children more than adults need abundant and fresh air. I use the word "fresh" advisedly because air may be chemically pure and yet be unfit to breathe. It is you know a mechanical mixture of gases of which all are essential and the mixture is one made "in the open," a natural result of an infinite variety of forces under the supreme law whose work we do not fully understand. To get an idea of the difference between natural and artificial air, imagine one made in the laboratory by the most skilful chemist and compare it with that which comes "from out of doors," they might correspond chemically but physically, and in that chemistry which stands close to the processes we call life they would differ so widely that practical use for breathing would condemn the one and instinctively demand and use the other. Now, in houses, we are utterly unable to secure the quantity or quality of fresh air supplied in the open, the difference is not only great but essential, and never to be lost sight of. "Perfect ventilation by artificial means" is impossible and tolerable ventilation is the best you can expect with your utmost care in the school house. Another fact, the suspended matter in the air has much to do with its healthfulness, more than is suspected. Remember that the specific poisons of

diphtheria, scarlet-fever, whooping-cough, measles, small-pox, typhus and other infectious diseases are breathed floating in the air, the most common method of their distribution. There are other matters, causes of danger to health which reach us in the same way.

Consider, for a moment, what they are. Many of the "odors" of the schoolroom are not removable by such ventilation as you can secure, or the "ventilating engineer" supply. For present purpose it will be sufficient to divide these "smells," called together "foul air," into three classes: 1st—Those in breath from lungs and air passages of teachers and scholars; 2d—Those from their bodies and underclothing; 3d—Those from their outer clothing which includes that of head, body and feet.

I venture nothing in stating that, in general, the first, so far as aerial danger is concerned, is the least dangerous of all; that the second is the most dangerous, and the third, as a rule, less than the first. It is well to be reminded that it is not the "odor" but the "dying" or "special" character of the organic matter contributed as above which is dangerous when "suspended" in the air of respiration. Its *special* character, if it have any, is due to the special virus of some communicable disease. "Dying" organic matter in suspension in air, and from living bodies, when in constant excess was called by the old doctors, "civic miasm," and had much to do with the origin and spread of "jail" or typhus fever so fatal in Howard's time. Now, in smaller amounts in the air of inhabited places, its influence is to clog physical activity, dampen mental vigor, and predispose to the attacks of disease. This is not the place for details which the iterated and reiterated experience of every faithful teacher will supply.

*To control these dangers, begin with teacher and scholars before they enter the school-room,* and provide that they shall come there always reasonably clean in person and clothing, for so far as they are concerned this is a *sine qua non* if the ventilating powers of any available air space are not to be tested beyond capacity.

*Next provide that the school-room be itself clean,* have sufficient air space, proper arrangements to change the air, proper lighting and heating, with suitable furniture. Add to these, limited occupancy, pure water supply, with suitable outhouses, and you have the material which a competent teacher may use to very great advantage in securing a reasonable air supply for himself and his pupils.

Taking the one-room village, and country, school-house for illustration—the school-room for 30 scholars (all that one teacher should be required to instruct) should be 45x30x12 feet. This gives 45 square feet of floor space to each child with 540 cubic feet of air space. Windows should have together about 250 sup. feet in area, and if not possible on both sides, then on the left. The floors should be of sound and well-seasoned wood, smooth and well made, and thoroughly saturated with hot, boiled linseed oil. The same rule for the wainscot. The walls should be of hard finish and kept sweet and clean by quick-lime wash, as often as every term. Furniture to be movable, and when of wood, treated as the floor. Windows to have movable sash, and interior sectional blinds of wood or linen on frames, which last should be made like mosquito bars and in three sections. There should be ample arrangement for cleaning and storing foot-gear outside the school-room, and outer clothing should be provided for in cloak rooms.

The regulation of ventilation in winter, late fall, and spring, is the real problem in our climate; the summer should offer no difficulty. Warming is best done by the hooded stove with available outside air-supply, and ventilation by the raised lower sash, a common and good method if properly used. Relying upon any apparatus and oversight of that alone for pure air supply will meet but moderate success under the best conditions, if the school-board or teacher neglect the facts as to disease prevalence here stated, or omit to insist upon the observance of cleanliness of person, clothing, school-room, and furniture, with their respectful use, that should be demanded in the interest of pupil, and public alike, for the common good.

C. N. H.

## THE EARTH CLOSET, ITS CONSTRUCTION, LIMITATIONS AND USE.

*Revised reprint from "Public Health in Minnesota," Vol. IV., No. 5.*

*The following rules apply to earth closets, patented or other, for the best of them, unless cared for, speedily becomes nuisances. It must not be forgotten that any mode of disposing of human excreta, from within an inhabited house, whether by water closet, earth closet, or in any other way, is artificial, and a possible source of ill health or disease. With any of them, tireless vigilance is the only security.*

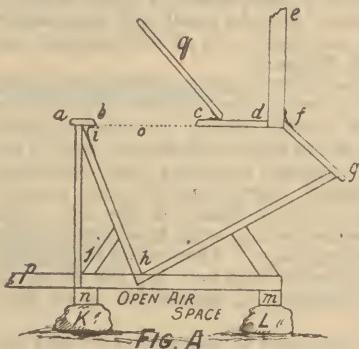


FIG. A.

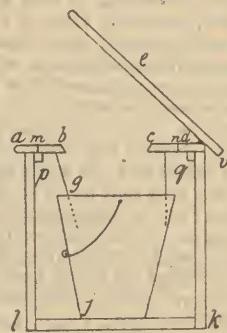


FIG. B.

Section through out-door earth closet. a, b, c, d, seat, usual size; f, g, h, i, receptacle for excreta; h, under point little back of centre of hole, b, c; h, g, so inclined to give room between f and g, for removing earth and excreta; f, g, door swinging on hinges, f, opening for cleaning, airing and sunning the box, g, h, i, zinc to direct urine into box; p, floor of house; e wall of house. Box, i. h. g, rests upon sills, m and n of house. Sills m and n should rest upon stones, k and l, and they on top of ground, leaving space for circulation of air. Box, i, h, g, to be made of plank and saturated with petroleum paint before use.

Section through centre of house closet. a, b, c, d, seat, distance, a, d, 18 in.; a, b, 4½; b, c, 10; b, c, the seat rests on cleats, p and q, and can be removed, joints at m and n.

To b, c, is attached a truncated cone, g, h, of zinc, 4 in. long; diam. 12 in. at top, 8 in. at base; g, j, is zinc pail, 13x13 in., with bail "n"; cover, v, e, turns on hinge d, and serves for back, when raised. The box to be saturated with boiled linseed oil. The earth box of the same size and oiled. The earth scoop of zinc, capacity, 1 pint. Use coarsely powdered charcoal with the earth, if possible.

The principles involved in the sanitary use of dry garden mould, peat, clay, and the like, are very simple, and their practical application to the disposition of human excreta is very easy too, provided that they are thoroughly understood, and that their natural limits are respected in their application to the intended use. This has not always been done, in the attempt to substitute the earth closet for "the hole-in-the ground," by Health Officers, or by householders who have attempted it for themselves. In answer to many letters, and as promised at the Rochester Conference, this paper is prepared.

As has been repeatedly stated, in these columns, the majority of all who have tried to use dry earth for this purpose, have paid more attention to the mechanism of the closet than to the quality and condition of the earth. While some have trusted to the mechanism, and omitted the constant oversight without which any machine will, in the long run, fail.

The principles involved are these:

1. Dried (best, sun-dried) and coarsely pulverized garden mould, peat, clay, (and other soils, in proportion to the amount of these which they contain) pre-

vent the odors of putrefaction, and secure the conversion of excreta into combinations harmless to animals, but exactly adapted to nourish vegetable life.

2. To do this most thoroughly, it is essential that soil of the character specified, should be *dry* and *in powder*. The apparent, and probably correct reason for this is the freest admission of air, and the avoidance of that "water-logged" condition, which, in common experience, is so favorable to putrefaction and mal-odorous decay.

3. When used for dry earth closet, no other fluids must be added than those accompanying each discharge under, and upon which, enough dry earth must be thrown just before, and just after use, to prevent any appearance of wet. Dampness is permissible, soaking wet not. *The dry earth closet is not adapted to the disinfection of chamber, or kitchen slopes*, and should never be used for that purpose. Assuming the above conditions complied with, dry earth as specified, and in quantity at least a pint before, and after use, the earth closet may be relied on for efficient work, under intelligent and regular supervision. Out of doors the freest ventilation consistent with dryness, is desirable. This should be above, below, and all around the container.

Another essential is that the container be nonabsorbent of either odors or fluids; still another, that it be of such form as to be easily and thoroughly emptied and cleaned; and lastly, that the mechanism be of the simplest and least expensive construction consistent with efficiency.

All these requirements are reasonably met in the plans herewith submitted. Fig. A represents a section of an outhouse, in which the ordinary construction is changed to that of an inexpensive earth closet, costing less than a single cleaning of the old and filthy vault. It is, as the engraving shows, open to the air on all sides, and its walls should be low enough to permit free ventilation between the seat and itself at the ends. Behind, it projects sufficiently to make the removal of its contents easy, but has a cover to keep out the rain. The whole interior of the box, (well made of seasoned wood,) must be saturated with petroleum paint, repeatedly till the surface is glossy. Then when thoroughly dry, it will resist all fluids and be easily cleaned as need be. For the dry earth, a box or barrel, with a pint zinc scoop for handling it, should be on the floor of the outhouse, handy and ready for use.

*For household or sick room use, No. 2 is all that is required*, provided the following conditions are complied with:

1. That the fluid excreta be collected in an earthen vessel for other disposal, and not, (except for young children,) admitted to the closet.
2. That the earth be thoroughly dry, and in coarse powder. An admixture of coarsely powdered charcoal is a cheap, easy, and very efficient, addition, for either indoor or outside use. *Use no odoriferous disinfectants in earth closets.*
3. That the closet be under constant supervision, and that the first evidence of foul odor be immediately investigated.

The conditions seem, at first sight, onorous, but after all they are no more so than those which should govern the care of water closets, and sinks. The household earth closet, conveniently placed in the wood-shed, or other place outside the house, but not out of doors, will, especially in winter, be found a healthy substitute for the usual outhouse, and do away with the inclement journey, which is so common an excuse for the neglect, or postponement, of a necessary daily duty.

*The winter use of the earth closet.*—The earth to be used being dry does not freeze, so that it is as available and efficient as in summer, whether out, or in doors.

*The preparation of the dry earth.*—A coal-ash sieve for sifting the earth before drying. The sifted material should be spread on a floor, or rough platform, under shelter from rain but open to air. As fast as dried, store in barrels, in a dry place.

A half dozen barrels will serve a large family from October to May. It is easy and better to provide twice as much.

*The disposition of the contents of the earth closets*, if cared for as above directed, is very easy and inoffensive. Those in No. 1 can be quickly shovelled into a wheelbarrow and thence on the garden, spading it under the surface soil near growing things. As to the winter accumulation, it will, of course, remain in the out-door closet till thawed out in the spring, when it is to be treated as above. Any accumulations in the house closets should be collected under cover out of doors, and treated as above, in the spring.—C. N. H.

## REPORT OF INFECTIOUS DISEASE

To be made, within twenty-four hours, to the Local Board of Health of the Town, Village, or City in which the sick person is.

**SEC. 20.** That every physician shall report to the Local Board of Health, in writing, every person having a contagious disease, and the state of his or her disease, and his or her place of dwelling, and name if known, which such physician has prescribed for or attended for the first time since having a contagious disease, or since the discovery of the same to be contagious, during any part of the preceding twenty-four (24) hours; but not more than two (2) reports shall be required in one (1) week concerning the same person; but every attending physician thereat must see that such report is or has been made by some attending physician.

**Sec. 21.** That it shall be the duty of each and every practicing physician in this State, to report in writing to the Local Board of Health the death of any of his patients who shall have died of contagious or infectious disease, within twenty-four (24) hours thereafter, and to state in such report the [specific] name and type of such disease.

**Sec. 22.** That every keeper of any private house, boarding-house or lodging-house, and every inn keeper and hotel keeper shall, within twenty-four (24) hours, report in writing to the Local Board of Health the same particulars required of any physician in the preceding section, concerning any person being at any of the aforesaid houses and hotels, and attacked with any contagious disease dangerous to the public health.

**Sec. 23.** That it shall be the duty of every person knowing of any person sick of any contagious disease dangerous to the public health, and the duty of every physician hearing of any such sick person, who he shall have reason to think requires the attention of the Local Board, to at once report the facts to the Board in regard to the disease, condition and dwelling place or position of such sick person. [Of Chapter 132, Laws of 1883. Sec. 30 defines the penalty.]

Copies of law, and instructions for management of infectious diseases, can be obtained on application, from your Local Board of Health, or from DR. HEWITT, Red Wing, Minn.,

Dated ..... 189 .....  
P. O. Address ..... Date .....

Location and address of head of infected family .....

The disease is .....

Names of Patients [Christian]	Sex [M or F]	Age	Date of Attack
.....	.....	.....	.....

No. in family ..... Males ..... Ages ..... Females ..... Ages .....

Name and address of other families exposed .....

Name and address of attending physician .....

Name and address of person making this return .....

Add any other information as to origin of the disease.



# MEASLES.

(RUBEOLA.)

PARENTS, and particularly mothers, are requested to read this little paper carefully to learn how they may save their own and other children from needless sickness, possibly deformity and death, by co-operation with the Local Board of Health in the control of Measles, as of other infectious disease.

*What is it?* It is one of the eruptive fevers usually recognized by its peculiar "catarrhal" symptoms and characteristic "rash." It has been confounded with the first stages of small pox and scarlet fever but this may be avoided by isolating the patient for two or three days, when the fact will be apparent.

*Its specific poison* or infection is produced in the rash, which contrary to common opinion, invades the membranes of the nose, throat, lungs and bowels before, and often more severely, than the skin. It escapes first in their secretions, and afterwards from the eruption on the skin. The first is the most virulent and abundant, and most difficult to control; the last is the least virulent and most readily destroyed.

*But is it worth while to attempt to restrict or control measles?* Most people and many physicians, advise "that children be permitted to catch the disease and be through with it, as the risk is slight and the mortality trifling." The time has passed to advocate the "catching" of any disease and as to the danger and mortality of measles let the following facts drawn from our records of the last five years answer. Total deaths from measles in that time in Minnesota, 850, an annual average of 171. 1.2% of total deaths from all causes, or 131 deaths to 1,000,000 living.

In the mortality of the last five years 74.12% were children under 5 years of age, and more than half (52.35%) under 2 years of age. Neither diphtheria or scarlet fever cause so great proportionate mortality under 2 and 5 years of age, as does measles.

*Seasonal mortality,* 45.29% occurred in spring; 25.46% in summer; 20.59% in winter, and 7.64% in autumn.

It is a great mistake to say that the mortality after Measles is due rather to complications than to the disease itself. The most common are affections of the lungs and bowels, and are but exaggerations of the usual conditions of the disease, the severity of the attack being expended on the mucous membranes instead of on the skin. In the great majority of cases the disease is sufficient to account for the death, without calling any other cause. As to the "sequela," as they are called, those affections which so often follow directly in the wake of measles: sore throat, nose, eyes and ears, scrofula, dropsy and other affections, there is no dispute as to their frequency, severity and importance. Now comes another objection. "But it is easier borne in infancy and childhood than by older people and it cannot be prevented anyway." To that the reply is this: The mortality and disability following the disease justify an effort which has repeatedly, and recently, been very successful. In England, where the mortality is greater than from either scarlatina or diphtheria, obligatory notification and isolation, have worked very important reductions in both sickness and death rate where enforced. So they have in our own State. It is our duty to make the attempt more general.

*What to do to prevent or restrict measles.* Mothers can do more than any one else because they see the first symptoms and can isolate a child promptly who is suspected of the disease. It is often a question to mother and physician whether a rash is that of scarlatina, measles, or some less important skin affection. The safety of the child, in any event, is best assured, by sending it to bed, or by a few days isolation. A day or two of quiet, and a hot bath will settle the question, and if either of the diseases is found, early care promotes the safety and recovery of the sick, and at the same time the safety of other children in the family, the neighborhood, and particularly in the school, which the children of the family attend. This education of mothers is the first and most important duty of the Local Boards of Health as respects the management of all infectious disease.

*Next in importance is the co-operation of the school teachers,* whom supply with this and all other circulars. When measles, or other infectious disease appears, notify them immediately of their duty to co-operate (see Chap. 132, Laws of 1883)\* and give the name and address of affected families, with request to exclude all children from such families or who visit them. Teachers should notify the Local Board of Health of children sent home from school who are too unwell to study, and should not permit a child with fever, hoarse or croupy cough, or well marked eruption on skin, to remain at school without the permission of the Board of Health.

*Houses in which are the sick of measles* or other infectious disease, should be placarded, the children restricted to the home, and no visiting permitted. The men of the family doing outside work, and not attending the sick, may go to work as the danger from clothing infected with this disease is not great in the open, away from children. New cases in the family of the first case will develop, if at all, by the tenth or twelfth day. If they do not, hot baths for all, with boiling water for infected clothing and bedding, and a thorough scrubbing of room and furniture will clear the record and remove occasion for further isolation. Patients to be isolated till "rash," "scurf" and "cough" have disappeared—from fourteen to twenty-eight days.

*Care of the sick of measles.* Put in a quiet clean, well ventilated and isolated room with the least furniture, carpets, etc., consistent with comfort. The nurse should wear an apron large enough to cover from neck to wrists and feet, while on duty and take other reasonable precautions. The well children should be kept as far from the sick as possible, in another building, if practicable.

*Thorough anointing* all over with simple ointment (one part mutton tallow or white wax, and two parts fresh lard melted separately and stirred till cold) will do much to keep the virus of the rash, on the skin or in the underclothing. All discharges from mouth, nose, or eyes, should be collected on rags and burned, or on handkerchiefs or towels and immediately put in hot water and boiled. Discharges from the bowels should be into a vessel containing a cupful of fresh lime water.†

These attentions and precautions, easy to take and simple to use, will reduce the chances of the spread of measles from a given case, or family, to small proportions, particularly among the very young where it finds the most of its victims. In no one of the infectious diseases is the co-operation of mothers more important, and in none will it be so promptly given when they come to know the truth of the matter as here stated.

C. N. H.

\* SEC. 28. That no principal, superintendent or teacher of any school, and no parent, master, or guardian of any child or minor, having the power and authority to prevent, shall permit any child or minor having scarlet fever, diphtheria, small pox or any dangerous, infectious or contagious disease, or any child residing in any house in which any such disease exists, or has recently existed, to attend any public or private school until the Board of Health of the town, village, borouhg, or city, shall have given its permission therefor; nor in any manner to be unnecessarily exposed, or to needlessly expose any other person to the taking or to the infection of any contagious disease.

† LIME WATER is the clear solution of quick-lime. Take best quick-lime in lumps, put in a pail, pour on one-third as much of water, cover closely and slack till it is a fine powder or creamy fluid; one part of this to three of water will make a saturated solution. Add water in that proportion to the mixture, stir well and then pour on half a tea cup of kerosene which will protect it from the air and preserve its strength. Use the solution as needed, and the solid matter, mixed with more water, can be used for whitewash or thrown into the sewer or ont house.

**DIPHThERIA—WHAT IS IT, ITS MORTALITY, ITS CAUSES, AND ITS PREVENTION IN MINNESOTA.**

It was the fearful mortality of this disease in 1882 which helped more than any other one fact to get the great charter of our sanitary rights (Chapter 132, Laws of 1883), on the statute book of the State. Under that law the present large and efficient organization of the State Public Health Service (the State Board of Health and over 1,600 Local Boards) has grown into a compact and efficient body,

No better proof of its executive ability could be given than the evidence of the following statistics. They give the mortality from diphtheria since 1881, with the population of the census years:

Years.....	1882 (pop. '80, 780,773)	1883,	1884,	1885,	1886,	1887,	1888,
Deaths.....	1,602,	1,374,	1,211,	1,138,	....	788,	866,
Years.....	1889,	1890, (pop. '90, 1,301,826)	1891,			Average of last 5 years.	
Deaths.....	889,	772,		720,			807.

*Seasonal prevalence, (average 5 years).*

Spring.....	20.1 per cent.	Summer.....	18.2 per cent.
Fall.....	30.8 per cent.	Winter.....	30.8 per cent.
Maximum mortality, October.	11.9 per cent.	Minimum mortality, July.....	5.3 per cent.
State .....	6.2 to 10,000 living	Cities of 15,000 to 30,000.....	2.5 to 10,000 living
Cities of over 100,000.....	7.6 to 10,000 living	Cities of 5,000 to 15,000.....	5.4 to 10,000 living
Villages and townships under 5,000.....			5.9 to 10,000 living.

Relative diphtheria mortality in centres of population over and under 5,000, (average of 5 years): 400,839 live in centres of over 5,000, 228 deaths (of total 1140), 34 per cent. of all deaths by diphtheria, and at rate of 7.6 to 10,000 living, 900,987 live in centres of less than 5,000, with 532 deaths, 66 per cent. of total, at the rate of 5.9 in 10,000 living.

Croup must still be recognized as a distinct disease, but to correct a false impression it is joined with diphtheria in the following statistics from the returns for 1891:

In the State, diphtheria and croup together caused.....6.1 deaths to 10,000 living  
In two cities of over 100,000 population each.....7.1 deaths to 10,000 living

*The mortality from diphtheria in 1891 was less than one-half that of 1882, though the population has doubled.* This great and steady gain is the result of obligatory notification, and constantly improving efficiency in enforcing isolation and disinfection by Local Boards of Health. The mortality in 1891 was 4.9% of all deaths, and the average of the last five years was 5.6% of all deaths. The victims are nearly all under 20 years of age; 80% are under 10 years of age.

But an annual loss of 700 children from this cause alone is an intolerable record if it can be reduced. The story of the past effort in our State is full of encouragement, and this new edition of the circular on the subject is intended to show how it can be made still better. Everybody can help, who will read what is here told, carefully, and then put it into practice; take every opportunity to impress it upon others; and support the Boards of Health in enforcing the law.

**DIPHThERIA** is a very infectious disease, and has the dreadful peculiarity that it may attack the same person twice. Its infection attaches itself to clothing, bedding and the like, where, if not exposed to direct sunlight or moisture it retains its virulence for months. It seems, almost, to grow in old and damp houses, and is, in every place, where it cannot be directly dealt with, exceedingly tenacious and persistent.

*The germ of the disease* is a microscopic, single celled plant having the form of a little rod, whence its Latin name, "bacillus diphtheriae." These little cells do not, so far as is now known, penetrate the vessels of the human body, or the fluids, or tissues. Their favorite location is the mucous membranes of the mouth, throat, and air passages. There they lodge, and multiply enormously and rapidly. During this growth the peculiar virus of the disease is produced. This virus is a subtle poison, resembling the venom of snakes in some of its effects; it is absorbed into the circulation with varying rapidity, not always in proportion to the amount of the peculiar exudation, or membrane which resembles a piece of wash leather, or an old-fashioned wafer, white, but with different shades of white. In the depths of this membrane the bacilli produce the poison. Like snake venom it may be swallowed, with impunity by men and animals and in large amounts, under whose skin an exceedingly minute amount would be fatal.

But it is with the bacillus, the germ and producer of the virus, that we have to do, and let us go on to study what are the conditions most favorable to its lodgment in the body. Most important of these, we are just beginning to know, is the health of the children exposed to the infection, and the freedom of their throats and air passages from wounds, or the effects of other throat ailments. A healthy child with a healthy throat is safer than one suffering from catarrah or recovering from scarlet fever or measles, but none are really safe in the presence of this most malignant of the infections of childhood.

*The effect of temperature on the growth* is noteworthy; that of the body is

the most favorable, but it is in proof that it can grow at much lower temperature outside the body, and the common explanation that the known persistence outside the body is due to dryness, does not account for the fact that it lives and grows in moist, dark and damp places, at low temperatures—at least it does not always die there.

*Moisture is absolutely necessary for the growth of the bacillus of diphtheria, but dryness does not kill it*, for it may remain dry on clothing, bedding, or any other thing out of exposure to direct sunlight for months, and then with favorable moisture, temperature, and soil, regain growth, infectiousness, and virulence.

*How does the disease begin, and what are the first symptoms?* It begins by the planting of the little germ, very likely many of them. They get into the mouth or nose in the air, or in or on solid or fluid food—on anything which is admitted to the mouth. (A five-year-old son of the writer swapping marbles, took from another boy an agate alley which, as a test for color he put into his mouth; that boy was convalescent from diphtheria. Mine had a nearly fatal attack.)

*Croup*—Sometimes this membrane begins in the wind-pipe, mechanically producing the obstruction to breathing, and the peculiar cough which we call “croup.” This happens so often and is so frequently assumed to be some other affection than diphtheria, thereby opening the way for the unchecked virus to do its deadly work, that experience has taught us to *treat all cases of croup as diphtheria* and that should be the rule of all Boards of Health.

*Do all who are exposed to the infection of diphtheria contract the disease?* No, for if they did few would escape it.

The healthy mucous membrane, like all other healthy tissues of the healthy body, is endowed with a strong power of resistance to the attacks of the multitude of vegetable and animal parasites to which it is, sleeping or waking, constantly exposed, mostly coming in the air breathed and so lodged in the moist air passages. Pisons of this kind are domesticated, and most common in and about inhabited places, which partly accounts for the number of children who suffer; though not entirely.

*Age at death.* Infants under one year of age suffer but 4.3% of all deaths from this cause in the average of five years (1837-91), in our State. While the other ages, under five, average about 10.0% gradually increasing from one to five years.

Under five years of age the mortality was 42.8%. It falls off rapidly thereafter, e. g., 5 to 10 years, 35.1%; 10 to 15 years, 13.1%; 15 to 20, 4.7%; 20 to 30, 1.9%; and 30 to 40, but .05%, 24 out of a grand total of 4,035 deaths in five years, or a yearly average of but 5 of 807 deaths from this cause.

This is an important fact—the mortality from diphtheria is very small after the 15th year of age—and after the 18th year not 3 per cent. In our experience the occurrence of such cases has been associated with concentrated and prolonged exposure to the infection with the depressing influence of anxiety, fatigue, and sorrow. All these predisposing causes favor the infection and are proportionably diminished by cleanliness, and comfortable quarters for sick and nurse, good air and food, abundant light and cheerful conditions, as they are aided by close and untidy quarters, bad air, light and food, with worry and care. The tired mother or nurse is the one who suffers most and everything done to comfort and help her is a help to the patient and a hindrance to the infection.

*How soon after infection is the disease likely to occur (the period of incubation)?* Within a week, and probably four or five days is the rule.

*How to deal with diphtheria, either by prevention or restriction?* We assume that the essential cause is a microscopic plant which comes from the diseased surface of the victim; that it is carried in the air as a dried powder, on, or as, dust; attaches to clothing, bedding, furniture, the floors and walls of rooms occupied by the sick; on or in solid and fluid foods, particularly milk (one of the best culture fluids); upon pet animals, playthings and books, and finally is contracted at the funerals of the dead. This last has happened so often in this State that public funerals are positively forbidden and private and speedy burial insisted on.

*Outside the body* in clean, roomy, and well ventilated houses, and still better in the open air, the *natural means of destruction* are always at work, they are sunlight, oxygenation, alternate dampness and dryness, with warmth, and the operation of microscopic animals and other plants, a mixture of vital and chemical activities which are always compelling healthful exchanges of life and death between particles of dead and living matter.

*In the body, and in the ordinary house*, and its contents, these agencies, while at work, are not under natural conditions and so work slowly, or not at all; we are therefore compelled to resort to artificial measures. These vary according as we have to deal with the infection in the presence of the person producing it, or after the last case in a family had been disposed of. This distinction is a very practical and important one.

*In a family living in a healthy house, where the sick can be entirely isolated from all association with the rest, except through the nurse, the well may escape the disease, and the method is easy and safe provided the measures here advised are strictly followed. From such a family the out-door workers may go without danger to their business, but those whose work is indoors and likely to bring them into close and confined places with other people would do better to take other lodgings till the danger is past.*

*How to do when the affected family is a large one, occupying a small house,* is the most common problem we have to solve, and if such a family is of untidy habits, careless or shiftless, and do not employ a physician it is not easy to decide. Let us take a family of this kind, poor, tidy, and intelligent, the reply will be more hopeful if the first case is promptly dealt with. The first thing to attempt (and it has repeatedly been done, particularly in country districts), is to remove the apparently healthy children to another building, if one is available, or to another family, where there are no small children, till the danger is over. The infected house in this way, becomes a hospital and the mother has leisure to attend to the sick while the other children are removed from further danger, and should one or more take sick he is immediately returned to the home.

*But suppose the well children cannot be moved in either way suggested, what is the next best thing to do?* The infection of the disease escapes from the body almost exclusively in the discharges from the mouth and nose, so that if they be destroyed immediately on escape, the danger to others is reduced to a very small chance.

This should be done from the first symptom till three weeks after recovery. An attentive nurse can easily manage it by collecting all the discharges on cotton or linen rags and immediately burning them, or easier put them directly in a dish of lime water (described farther on) and at regular times burn them. She must see that all soiled clothing, bedding, towels, handkerchiefs, wash-cloths or other articles used about the sick are, immediately after use, put into hot water and boiled, as this will kill the virus surely, and such things may then go into the common wash with safety. Always wear a calico wrapper in the sick room, covering the dress entirely, when soiled put it in boiling water immediately. Wear a linen or cotton cap to cover your hair, treating it as the wrapper, and always wash hands and face when about to leave the room. Keep every one else from the sick room, and if they must come let them wear a wrapper and cap as you do. It is only in this way that you can be sure you have done the best thing.

The well children should be kept as far from the sick as possible, and when the weather permits out of doors, in granary, barn, or under other shelter for play.

*What is the duty of a Local Board of Health to such a family?* Isolate them thoroughly from association with others, except as permitted by the Board of Health, and let this include the house and lot so that the well children need not be confined to the house but may play outside, as can be done in the ordinary town lot and on the farm under the direction of the Board. The Board is to offer the family every assistance possible, see that they have means of communication with others, doing errands, sending for the doctor, in short all that can be permitted with safety to others. If a poor charge, everything needful is to be provided by the Board. (See Sec. 29, Chap. 132, Laws 1883.)

*But if the infected family is one of a number occupying a dwelling, with other families, what then?* The safest way would be to remove all well children to another and isolated house (in default of a hospital or retreat), but much can be done in the ways above suggested.

*Care of the sick of diphtheria when too much for the mother, with the help of older children?* is one of the most pathetic questions asked of the Secretary by Chairmen of Township Boards. *It is a shame that with so many trained nurses, sisters, deaconesses, and other single women able to scrye, there is no supply for such a demand as this?* Our files are witnesses of the urgency of this call in remote country districts and among the poor, where more than one patient and worn out mother, has followed the last of her children, by the same disease to the grave. Some of the lack is due to an exaggerated fear of the disease by women over 30 years old. Not one in a hundred, after that age, exposed to the infection, take it, nor one in a hundred, taking the disease die of it. Their only real danger is the carrying infection to others, not to take it themselves.

*Is the father or other bread-winner to be kept from his work because he has a child sick of diphtheria?* In the case of one dependent on daily labor for daily bread, if he must stay at home, it is real economy to allow him wages for pub-

lic safety. If he can arrange to keep clear of exposure, to the satisfaction of the Board, he should be permitted to go to work, and the best way is to lodge and board elsewhere, visiting home under the same sanitary restrictions as the physician or clergyman. This ought to be insisted on in the case of a store, grocery, saloon or similar business; the proprietor and clerk must not expose others to infection; they must board and lodge outside the infected family if they are to attend to their work. Of the details each Local Board of Health must be the judges.

*When is the isolation to be removed from a family where there has been diphtheria?* Not until at least three weeks after the recovery of the last case in that family, and not then unless thorough disinfection has followed.

**How to DISINFECTION:**—*Begin with the patient immediately the disease is recognized*, using the means already described, constantly and thoroughly, so that when the case is terminated there will be little else to do than to deal with bedding, furniture, and room. Do not be persuaded to use little “smudges” of sulphur or any other odiferous thing. When the air is foul ventilate by letting in fresh air, but do not make it worse by still another “smell.”

1. *Clothing, Bedding.* Everything which will bear boiling water (it is well to add soap but nothing else, nor even that necessary), can be absolutely disinfected by its use, and fifteen minutes hard boiling is enough. This simplifies the matter very much—boiling water is a perfect disinfectant, none better except alternate superheated air and steam, which are not available at present even in cities. The contents of mattresses of straw, excelsior, moss, and the like, should be burned, the ticks, if worth it, can be safely dealt with by water; featherbeds, should be disinfected first by steam and sulphur, as above, then opened, the feathers scalded, and dried in the open air, and tick washed. Cotton quilts are sanitary abominations and after use in diphtheria are better burned though they may be boiled, *for at least one hour and be safe.*

2. *Sulphurous fumigation.* Arrange bedding, carpets, etc., so that the steam and gas can reach them readily, close all openings of the room but the door, and fill the air with the vapor of water from a boiler on the stove, if there be one; if not, then fill a wash-tub in the middle of the room with water as hot as possible and close the door. As soon as the water has cooled dip out all but about two inches in depth; put in two or three bricks, and upon them put an old frying pan or kettle containing two pounds of sulphur for each 100 cubic foot of space, using more than one tub and kettle if the space is greater. Pour on the sulphur two ounces of alcohol, light it and go out closing the door, and leave it closed for twelve hours.

After fumigation open doors and windows, put the bedding and mattresses out doors to get sun and air, wash the floors and furniture with hot *soft* soap-suds, take off the paper from the walls and wash them in the same way. \*Lime wash the ceiling and if not to be painted, do the same for the walls. Do not use wall paper. Leave all open to the sunlight and air till thoroughly dry; if the floor was painted, repeat it; if not, saturate it with boiled linseed oil, which is the best treatment for floors either for care, appearance, or health. After the most thorough disinfection prevent children sleeping in the room for at least a month, and until it has been repeatedly cleaned and ventilated.

*The influence of schools, and other public gatherings of children upon the spread of diphtheria,* may be inferred from the number of deaths from this cause at the school-going age, 50% of total, a very powerful argument for school teachers to co-operate with Boards of Health as required by law.

“No principal, superintendent or teacher of any school (public or private), shall permit any child having scarlet fever, diphtheria, small pox, or any dangerous, infectious or contagious disease, or any child living in any house in which any such disease exists, or has recently existed to attend any public or private school until the Board of Health of the town, village, borough, or city, shall have given permission therefor; nor in any manner to be unnecessarily exposed or to needlessly expose any other person to the infection of any contagious disease.”—Sec. 26, Chap. 132, *Laws of 1883.*

(A circular to school teachers on “Health of Children in the Schools,” can be had of the Local Boards, or of the Secretary S. B. of H., at Red Wing.)

*Disposal of the dead of diphtheria.* Immediately after death the body should be wrapped in a sheet saturated with strong lime water, put in a tight coffin, and taken to the grave with no other assistance than is required for decent, decent, and private burial. This to avoid the known danger of infection from the dead of this disease.

\**Lime water* is the clear solution of quick-lime. Take best quick-lime in lumps, put in a pail, pour on one-third as much of water, cover closely and slack till it is a fine powder or creamy fluid; one part of this to three of water will make a saturated solution. Add water in that proportion to the mixture, stir well and then pour on half teacup of kerosene, which will protect it from the air and preserve its strength. Use the clear solution as needed, and the semi-solid matter can be made into whitewash or thrown into privy, cess-pool or garbage barrel. Always use “soft (potash) soap” for cleaning floors, furniture, and the like after infectious diseases; it is a powerful disinfectant.

C. N. H.

# SCARLATINA.

(SCARLET FEVER, SCARLET RASH, CANKER RASH, MALIGNANT SORE THROAT.)

## WHAT IS IT? HOW DOES IT SPREAD? HOW TO PREVENT OR CONTROL IT.

NOTE.—This tract is for free distribution by Boards of Health, and others interested in the prevention and control of infectious diseases. Apply to any Health Officer, Local Board of Health, or directly to Dr. Hewitt, Secretary S. B. of H., Red Wing.

**S**CARLET FEVER is one of the infectious diseases distinguished by its peculiar rash or "eruption."

Our statistics, added to actual experience, show:

*That scarlatina is most fatal in young children under five years (65%).*

*That 33% of all deaths occur in school-going children.*

*That it has not proved fatal, in the last five years in Minnesota, to persons over thirty years of age.*

*That it is most fatal in the Spring, but mortality begins to rise in the late Fall, and increases till May.*

*That the mortality, to number living, is greatest in the larger cities and least in scattered population.*

*That these statistics support conclusions based on other evidence that the disease is spread largely by personal contact and infected clothing, chiefly by the last.*

*That schools are largely instrumental in spreading scarlatina as above.*

*That the isolation of the sick and of infected persons, with thorough disinfection of persons and things, are our most reliable measures to control the disease.*

The additional facts of this disease needful to be known for its prevention or restriction are:

*First—That its special infection is developed in the eruption in the skin, and given off thence to persons and clothing, and to bedding and other things in occupied rooms, and that it continues to be given off constantly till the skin is entirely well and all scurf or scurfiness has disappeared.*

*Second—That the slightest attack of the disease in one child may provoke a severe attack in another exposed to it, and that when it is epidemic a large proportion of the cases are often of so slight a type as not to be recognized at first, or, often, till the infection has been given to others.*

*Third—The period of "incubation" (time from taking the infection till the first symptoms appear) is rarely longer than seven days (one week), sometimes but a few hours.*

*Fourth—The patient is infectious, and so dangerous to others, for at least forty days and as a rule for seven or eight weeks, i. e., till the skin is entirely well and free of scurf, particularly on the palms of the hands and soles of the feet.*

*Fifth—The infection preserves its virulence in clothing and bedding hung up in closets or packed in trunks, clothing of the patient or his attendant or others exposed to him. So stored, the infection clings to such things, sometimes for months, ready, when the article is shaken in the air, or worn, to float off and infect the nearest child.*

*Sixth—Boiling water will destroy this infection in clothing or bedding, and a strong solution of quick-lime will do the same for floors and walls if freely applied. On the person of the sick a simple ointment (one part white tallow and two parts fresh lard melted separately and mixed thoroughly till cold) is the best and easiest means of limiting the spread of the infection. Used all over the body it does two things—relieves the fever and itching of*

*the rash, and confines the loose particles of skin containing virus to its surface or to the body clothing or sheets of the bed, thus preventing its escape into the air. It should be used daily till complete recovery.*

The above brief of needful facts is italicised to impress their importance upon Boards of Health and the mothers of families. They are the foundation upon which rest the measures we are to take to prevent or control scarlatina. It is evident from the above that the measures best adapted to the safety of the infected family and the community are, isolation of the sick, with the nurse, from all association with the family or other persons, in the most secluded room available and outside the family if possible. (Where isolation hospitals do not exist this is very difficult.) The room should contain no more furniture, carpets, rugs or window hangings than are required for the use and comfort of the sick. All clothing, bedding and other needful things should be kept scrupulously clean. (Never use feather beds or comforters, but hair or straw mattresses and blankets). The nurse should have two calico wrappers, covering the clothing from neck to wrists and feet, for alternate use. The ventilation, warming and lighting of the sick room should be independent of the rest of the house. (Currents of air *from* it would be the means of distributing the infection.) The patient should be anointed from head to foot daily with some simple ointment (*see above*) and the clothing, both of patient and nurse, sheets and pillow cases, towels, handkerchiefs and the like, should immediately after removal, be plunged into hot water in a covered boiler and boiled for twenty minutes, when the virus they may have contained will be killed and all danger from that source removed. Dishes used in the sick room should be treated to boiling soap suds as soon as used, and food *from* the sick room burned.

*The well children of the infected family are best cared for in another building or in other families where there are no children, and isolated there for at least a week before being permitted to go to school or on the street. Any who get sick are immediately returned to the home—for the time being a hospital.*

After the recovery, or death, of the sick from scarlatina, if the above precautions have been faithfully taken during the entire sickness, the disinfection necessary will be that of the room, bedding and furniture, and of the clothing last worn by patient and nurse. All things that can be boiled should be soaked in a vessel of hot water *in the room* and then boiled as above directed. Before cleaning the room saturate the air with steam from hot water, then wash all furniture with scalding soap suds to which has been added "washing soda" freely; then put the furniture out of doors to dry. (Upholstered furniture, feather beds and pillows are difficult of disinfection and must be treated as advised by the health officer in each case.) The floor, walls and ceiling of the room should be treated to *hot fresh lime water\** with a whitewash brush. If there is paper on the wall this method will disinfect, and make its removal easy. (All paper scraps and dust should be burned.) These things done, open the windows, keep up the fire and dry the room. Ventilate in this way for two or three days, if possible, then scrub and clean the floor, and wood work, oil or paint them, and repeat the whitewashing of the walls and ceiling.

*Disposal of the Dead of Scarlatina.*—Immediately after death the body should be wrapped in a sheet saturated with strong lime water and put into a tight coffin. If the weather permits it should be cooled to freezing as soon as possible. When coffined it should be removed directly to the grave with no other assistance that is required for decent and private burial. This is necessary to avoid infection from the body of the dead.

*The Relation of Schools and Public Gatherings to the spread of Scarlatina*—This disease caused nearly seven per cent of the total mortality by infectious diseases in the schools of the State during the past four years, and 33% of its total mortality at all ages, was at the school-going age.

C. N. H.

\* LIME WATER is the clear solution of quick-lime. Take best quick-lime in lumps, put in a pail, pour on one-third as much of water, cover closely and shake till it is a fine powder or creamy fluid; one part of this to three of water will make a saturated solution. Add water in that proportion to the mixture, stir well and then pour on half tea cup of kerosene, which will protect it from the air and preserve its strength. Use the solution as needed, and the solid matter, mixed with more water, can be made into whitewash or thrown into the sewer or out-house.

## ENTERIC (TYPHOID) FEVER.

An unfortunate familiarity with this disease, by both physicians and people, seems to have made them forget its constant and serious sickness and mortality rate, and its fatality among the very flower of our population.

Its average toll of deaths for the last five years has been 50 a month, 581 per annum, or nearly 5 per cent. of the total of deaths from all causes. Forty-six per cent. of its mortality occurs in the autumn; the maximum of monthly mortality is in October (106) and the minimum in May (22). Sixty-one per cent. of its victims are males, and 37 per cent. are between the ages of 20 and 30 years, and nearly 70 per cent. are between 15 and 40 years.

As to *parent nativity*, it must be borne in mind that 56 per cent. of our population are foreign born.

The nativity, and parent nativity of the dead of Enteric Fever (average 5 years) are as follows:

<i>Nativity.</i>	Per cent.	<i>Parent-nativity.</i>	Per cent.
Born where died.....	9.98	Both parents American.....	14.63
Born elsewhere in Minnesota.....	12.40	Both parents foreign.....	66.85
Born in other U. S.....	20.65	One parent foreign.....	3.51
Foreign-born.....	52.67	Unknown parentage.....	15.01
Birthplace unknown.....	4.06		

*What is Enteric (Typhoid) Fever?* It is a slow fever usually characterized by a persistent diarrhoea after the first week, with some swelling and tenderness above the right groin. It is peculiar also in having a regular rise of temperature from morning to night of two or three degrees. Its incubation period is long—21 days; the crisis comes, usually, three weeks from the beginning; relapses are frequent and convalescence usually slow. Mortality varies, average about 10 per cent.

*Why not call it Typhoid?* Because the name implies an untruth. It is not like typhus, which is what typhoid means, but is a distinct disease. Typhus is so rare that very few physicians ever saw it, and it has never been seen in Minnesota. Enteric fever (the so-called typhoid) is, as we have seen, common with us.

*Where does Enteric fever come from?* It is a "filth disease," but filth alone cannot produce it. There must be its specific cause, which comes from the bowels, and in the excreta of its victims. This cause can grow and multiply outside the human body when it finds a congenial home. That it does in "hole in the ground" privies and other underground collections of human excreta. From thence or from the persons and bed-rooms of the untidy sick it gets into food and drink, as milk, water, and the like. It must go into the mouth to reach the small intestines, where it begins an attack on its host while reproducing its kind in enormous amount to escape with the dejecta, ready, if circumstances favor, for new victims.

*Enteric fever is near akin to Asiatic Cholera.* Both are "filth diseases;" both have a specific cause, cultivated in the bowels of the victim and escaping, for further destruction, in his dejecta. Both can be "crushed out" in the same way. Neither can exist except in isolated cases, in a "clean" city, town, or village, i. e., one in which there is no possibility for human excreta to foul the soil, water, or air, of inhabited places.

*How to prevent Enteric fever?* Any one who has read this memorandum, can answer that question so far as he is concerned, (if a householder,) for himself by reading the circular on "Disposal of Excreta and Garbage," to be obtained of the Board of Health, (or of the Secretary of the State Board, address Red Wing.) When he has done his duty by his own family in this respect let him secure protection from his neighbor's neglect by insisting that the Local Board of Health do its duty too by enforcing the plain requirements of Chapter 132, Laws 1883.

C. N. H.

*Disinfection for the prevention of enteric (typhoid) fever* is of two sorts: 1. The prompt, regular, and the entire disposal of human excreta by surface burial in cultivated land. 2. The chemical destruction as provided below. The first is best done (in the absence of a proper sewage and water supply system) by the use of the above-ground closet with dry earth, and the disposal of its contents by a regular scavenger force, upon cultivated land. The second is available for the individual sick, and by families, as here described.

For this purpose, nothing is better for the destruction of excreta than the fresh slackened lime or lime water\* described below, for house use, and for above ground closets. A saturated and acid solution of sulphate of iron will do for coarser disinfection and as a deodorizer, but the two first, prepared from fresh common quicklime supply all that is needed for ordinary disinfecting purposes, in cheap, odorless, easily prepared, efficient and quite permanent form. The lime water is best for bed-room use, and for applying with whitewash brush to suspected walls or ceilings. As much as a pint should be kept constantly in the vessel used by patients in a sick room. For outside use, it may be thickened by stirring up the undissolved lime to the thickness of ordinary whitewash, and poured upon the excreta. The powder of the freshly slackened lime may be used in the same way out of doors, because it increases the dryness by the absorption of moisture.

Common, well made, "soft soap" is a strong caustic alkali, and by its free potash a powerful disinfectant, and therefore best adapted for cleansing purposes on floors, furniture, or other places or things soiled by suspected discharges of the sick, and in hot solution, should be used for soaking and boiling suspected clothes, bedding and the like.

\**Fresh slack lime.* Prepare as for whitewash by taking best quicklime in lump, put in a pail and add about one-third as much water, cover closely and slack to a powder. This must be used soon for it rapidly loses its causticity. If enough water is added to make of the consistency of cream it may be preserved in full strength till used by simply covering its surface with a thin layer of common kerosene.

*Lime-water* is made from the above in the proportion of one to three of water (boiled water best) stir it well and cover with kerosene as above. These with strong soft soap furnish enough disinfectants for disposing of excreta in the sick room; the cleansing of floors and furniture; the cleansing and whitening of walls; the disinfection of above ground closets, and the disinfection of clothing, bedding, etc., which need to be boiled and cleansed.

*Whitewash so prepared* should be freely used in cellars and basements. "Kalsomine," "alabastine" and the like are worthless, because not caustic alkalies as true whitewash is.

## SMALL-POX.

(VARIOLA.)

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What is it? How to escape it? How to control it?

It is a virulent and very infectious disease which, before the discovery of vaccination, was the most frightful and destructive pest ever known. It differs from all other plagues in prevailing at all seasons of the year, among all nations, sparing neither sex, age, or condition. Vaccination and re-vaccination have done what *inoculation* first, and *isolation* and *disinfection* afterwards, could not do—given an almost perfect protection from the disease for all who use them as experience has shown they must be used. Without them small-pox is the same pestilence as ever. Only those are safe whom vaccination guards. Seventy per cent. of the school children of this State have never been vaccinated, and children under 5 years of age are no better off. Re-vaccination is comparatively rare.

*Most of our small-pox infection comes to us in the clothing or baggage of immigrants*, sometimes, but not so often, in the persons of the victims. Small-pox is very frequently confounded with measles and chicken-pox, but a few days of isolation will clear up the difficulty and is the proper way to decide it.

*When is small-pox infectious?* Probably from the beginning of the fever, three days before the eruption, but certainly when the eruption appears, and until the last signs of it—the scabs—disappear.

*How is it spread?* Often a single and momentary exposure to the infection of the sick room is enough. The dead body is infectious, and the clothing, bedding and the like will retain the virus, in a dry and dark place, for months. The same is true of carpets, floors and the walls of rooms, for the disease has spread in this way, and repeatedly, in our State. From a single case in Wadena, a few years ago, the infection was carried, by persons not sick when they left Wadena, to another Minnesota town, to Winnipeg and to the Yellowstone. *It will be easily understood therefore how important is the promptest isolation of persons, clothing and baggage reasonably suspected of the infection.*

Boards of Health are not omniscient, and every citizen and parent should report to them, in person or by messenger, any rumor, or fact, of the disease that comes to them. But do not wait a moment to insist that suspected persons keep isolated till the Board have acted, for much danger may be saved by such action as a few determined people may take before the Board are in charge. If the Board find there has been exposure, or a reasonable probability of it, it will first secure strict isolation of persons, clothing and baggage; then the vaccination or re-vaccination of all exposed persons; then a thorough hot bath for each of them, and a boil of half an hour in water for all clothing and baggage which can be treated in that way. The vaccine will work, if at all, so as to be recognized on the 6th or 7th day when all showing it, may be discharged. Those upon whom it does not take, who have a history of the operation and good scars go out on the seventh day, while those who refuse the test must remain to the fourteenth day (the period of incubation of small-pox) and may then go.

*But if small-pox appear what then?* I. Remove the case to a separate building (if no hospital is available), and in warm weather it is better and more comfortable for the patient, to use wall tents. A nurse should be vaccinated before taking charge, and is then practically free from danger.

II. Everything that the patient has used should go with him, clothing, bedding, baggage, and then the room he occupied should be disinfected with steam and sulphur fumes under the direction of the Board of Health, scrubbed, whitewashed with quick-lime and thoroughly dried with free ventilation. Nothing need be destroyed except feather beds used by the patient, which it is safer to burn.

The tents occupied by the patients should be in an airy, dry and properly sheltered place away from traveled roads, near to water if possible, and every provision made for their comfort and care. There would be less difficulty in getting good nurses if people would trust their vaccination as the writer and all active Health Officers do. A recent successful vaccination or the failure of a recent use of active vaccine to take is satisfactory proof of safety.

*But what is vaccine?* It is the virus of a peculiar affection of cattle, which if carefully cultivated on young and healthy calves, can be used with perfect safety upon man. It is carefully collected on ivory points in sterile glass tubes and in other ways, and so preserved for distribution and use. Vaccination is the insertion of this virus by minute punctures, or scratches into the skin. Five little punctures result, after four days, in the formation of as many little vesicles which on a healthy infant look "like pearls on a rose leaf," by the day week, gradually dry up to crusts which fall off in due time leaving little peculiarly pitted scars proof of the character of the operation.

*When should vaccination be done? When repeated?* After the third month of age is the best time, as infants suffer least of all from the operation. All others who have never been vaccinated should immediately get it. Five insertions give the greatest security with no additional trouble. Re-vaccination should be done after puberty, and any time when one is directly exposed to the infection of small-pox.

*Is vaccination a protection against small-pox?* Yes if the vaccine is pure and fresh, and if it is used as above directed. The writer has been directly and repeatedly exposed to small-pox in more than forty distinct outbreaks, and has been re-vaccinated many times, yet the vaccine has never taken again since childhood, nor has any one of the re-vaccinations ever produced other than trifling effect.

*Where can pure, fresh and reliable vaccine be obtained?* At the station of this Board, where, after a careful study of the methods of selecting, cultivating, preserving and using of vaccine in Europe and this country, we are cultivating the best virus upon healthy nursing calves. It has been tested with the greatest care in over 2,000 cases, with the typical results.

The object in view is to supply vaccine virus of the greatest purity and efficiency by the most careful selection of healthy calves who are tested as to healthfulness in every practicable way; their vaccination is done with every safeguard; they are watched and have every attention till the vaccine is ready for removal; it is taken with all tested precautions, and as carefully sealed up for distribution. A report of its operation is required of all to whom it is sent, so that the slightest variation from its normal operation can be immediately investigated with samples always reserved for the purpose. It is now nearly two years and not a complaint has come back with the reports of its use. The State Board of Health in this way has removed the last objection to the use of healthy vaccine, and relies upon the hearty co-operation of the people of the State to restore the practice to its old time frequency and value.

C. N. H.

**THE MINNESOTA VACCINE STATION.**

FOR THE PROPAGATION OF PURE CALF VACCINE.

ESTABLISHED DECEMBER, 1890.

Under personal direction of the Secretary.

The work began with a personal visit to all the leading vaccine stations of Europe and the United States and a study of methods, and results, under representative producers and users of vaccine, both animal and humanized. After this experience the virus selected was that of the National Vaccine Institution of England, in London. This has been carefully cultivated on healthy, nursing calves, under the best conditions, and the result is a vaccine which is pure, active and typical in its operation, and is kept to the highest standard by the most careful attention to every detail in its production, and by the constant use of the crucial test—the result of its use in the hands of medical men, a report of which is the invariable condition of its issue. The station is now in Red Wing, near the Secretary's office, and under his personal control.

The object of this establishment is—

1. To answer professional and popular objection to humanized vaccine by furnishing one of natural origin which has never entered a human body, is cultivated on healthy, nursing calves, who drink the milk of our own cows, selected for the purpose, and whose bodies are examined after slaughter for any evidence of disease.

2. To maintain a constant supply of calf vaccine.

(a) For the free vaccination of children in Minnesota under proper restrictions, and under the direction of the Local Boards of Health. For details of this use apply to the Secretary.

(b) To be prepared for the emergency of a sudden outbreak of small pox in the State.

(c) To supply to physicians, what they have long asked, reliable calf-lymph at reasonable prices.

(d) To be able to offer to other State and Local Boards of Health the same facilities as to our own.

(e) In the above and other helpful ways, to do our share to restore vaccination to its rightful place as the surest protection against small pox.

*Conditions of supply*—All supplies, whether by gift or purchase, are conditioned on the prompt report of results on the day-week of use, so that the producer may know, at the earliest moment, the operation of the vaccine of each calf.

*Free*—To Local Boards of Health, in agreed quantities and on certain conditions, for the free vaccination of children, and in any necessary amount, for *free* use in presence of small pox. To physicians (three points) for first trial.

*Prices* *All orders to be prepaid.* For any point which (used as directed on wrapper, within ten days after receipt), fails to produce one typical vesicle, another will be sent on prompt notice. One point, 20 cents; 2 points, 30 cents; 3 points, 40 cents; 5 points, 60 cents; 10 points, \$1.00; 20 to 50 points, at one order, at the rate of \$7.50 per 100; 50 points or more in one order, at the rate of \$6.00 per 100.

With increasing orders for vaccine, it is imperative to insist upon the rule—*All orders must be accompanied by cash or postal orders. In emergency, "payment mailed" must be a part of telegram.* It is impossible to keep accounts and render bills, as some have asked, for such *small and scattered amounts*.

With all virus issued will be sent printed directions for use, a postal card ruled for the “day-week” report, and a circular letter.

*Certificate of Vaccination.* We have prepared a neat card to be filled out by Health Officers for children upon whom our vaccine has been used and who present satisfactory vesicles on the day-week. It will be found a strong inducement to report on the seventh day. (Price, \$1.00 per 100 prepaid.)

*Money with order.*



INFECTIOUS DISEASES OF ANIMALS.  
RABIES.—12-20-92—5,000.

STATE BOARD OF HEALTH IN MINNESOTA.

# RABIES.

*A PAPER DESCRIBING THE DISEASE AS IT APPEARS IN  
DOMESTIC ANIMALS AND MAN.*

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WITH DIRECTION FOR ITS RECOGNITION AND MANAGEMENT BY  
LOCAL BOARDS OF HEALTH.

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COPIES FOR FREE DISTRIBUTION MAY BE GOTTEN OF LOCAL BOARDS OF  
HEALTH, OR OF THE SECRETARY OF THE STATE  
BOARD, RED WING.

## PREFACE.

This paper is addressed not only to the State Public Health Service-Boards of Health—but to every citizen interested in the history, and methods for control, of this dreaded disease.

The object is to tell the simple truth about Rabies and thereby disprove and abolish the absurd statements and beliefs now so common. They have caused much needless, but none the less real, mental and physical suffering, and stand directly in the way of the efforts, proper to be made, for the prevention and control of the disease.

Rabies is a real and dangerous affection. It may occur at any time if a rabid animal bite others, or man, but not without that cause, for it never originates from other sickness, nor in any other way than by some kind of inoculation from an animal having the disease.

Every one sympathises with the instinctive dread of Rabies because every one feels it. The bravest and largest dogs run away from a "rabid" poodle.

The popular dread of the disease had another justification hitherto, in our confessed ignorance of its real origin, character and symptoms. There were only the apparent symptoms to distinguish the false from the true, a real from a needless alarm, a harmless from a dangerous bite. If the disease did exist we knew little of the probabilities of its conveyance by a given bite, or of the duration of its incubation before its active attack.

These doubts were often as serious, almost, as the disease itself. It is not so now. Pasteur and his followers have cleared away many doubts and replaced the wildest speculation by incontrovertible truth. They have made it possible for the feeblest township Board of Health to do more for the prevention and control of Rabies than the strongest city Board would have attempted a few years ago.

*The first step, in taking which Boards should have the hearty support of the people they serve, is to order the registration of all dogs and that they wear a suitable collar and tag as evidence of the fact.*

*Should there be reason to suspect the presence of the disease, every dog running at large should also be required to wear a muzzle sufficient to prevent the possibility of its biting other animals and men. To these rules should be added the other one that the Local Board of Health catch all dogs suspected to be rabid and isolate them for a week or ten days to verify the character of their disease. As it is not always possible to take such animals alive, it should be the rule, when those killed are reasonably suspected to have had the disease, to arrange for further experiment, as advised in the following paper.*

If the suggestions here made are carried out we shall hear less of Rabies, but what is reported will be nearer the fact, while if the disease does occur, it will be possible to act promptly, not only for any who may have been bitten, but for the extinction of the affection itself.

It is proper to state that in 1890 I made a special study, with Pasteur himself, of his treatment for persons bitten by rabid dogs, with a view to the establishment of a "Pasteur Institute" in Minnesota, under the auspices of the State Board of Health should it be found to be needful, for which no further steps have been taken.

I would not hesitate a moment to use that treatment for myself, family or friends, as the only way to safety now known, and shall be glad to advise any persons thought to be bitten in this way as to the proper course to pursue.

Red Wing, Dec. 20, 1892.

C. N. H.

# RABIES.

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(FALSELY CALLED HYDROPHOBIA.)

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Boards of Health deal with Rabies as with any other infectious disease of men and animals under Chapter 132, Laws of 1883, and Chapter 200, Laws 1885, and will promptly notify the Secretary of the State Board of the history of such cases and their action as provided in Section 18, of the first named law and Section 12 of the last.

*Distribute this circular freely when there is excitement on the subject, and promptly test every suspected animal by confinement as suggested, or, if killed, by sending the head as directed, or the brain carefully removed and sealed in a suitable jar of pure glycerine, to the Secretary for the Pasteur test.*

WHAT IS IT? An infectious, and fatal disease of the nervous system. Its specific poison is communicated by the bite of an animal having the disease and so by inoculation under the skin. *The virus does not operate through the unbroken skin, nor by way of the digestive canal.*

WHERE DOES IT COME FROM? In our State all reported outbreaks have been associated with the appearance of a strange, and angry dog, with a single exception when a cat was reported to be the biter. In other countries the wolf and fox have been blamed.

HOW TO PREVENT THE DISEASE. This can be done, surely, in the following way. Compel the owners of dogs to register them and provide them with evidence of the fact by a collar and tag. In the presence of affected or suspected animals, require all dogs running on the highway, to be muzzled, and tagged, on penalty of pound and fine, or slaughter on sight.

A DOG IS FOUND RUNNING AT LARGE, ACTING STRANGELY, OWNERLESS, AND SUSPECTED OF RABIES, WHAT SHALL BE DONE WITH HIM?

If possible catch and confine him in a quiet, roomy, and comfortable place where he can be watched, fed and kindly treated till a few days' time develop the character of his disease, if he have any.

WHY DO THIS RATHER THAN KILL HIM ON THE SPOT? For very important reasons. The probabilities are altogether against his having Rabies.

If he has the disease, under the circumstances of his capture, a few days will tell the story.

If a person has been bitten by him this is the way to get an answer to the question, Was the dog mad when he bit?

If the suspected animal recover his health and spirits he was not rabid.

If he seem to recover and after a week give evidence of the disease, the person bitten before his arrest is safe. The animal may then be killed and his brain used for the further test described below.

Saving, caring for, and watching a suspected dog will, in the majority of cases, prove the character of the disease with which he is charged, and in a few days. Kill him and there is no way to quiet the popular excitement which usually accompanies the suspicion of this dreaded affection.

BUT SUPPOSE, AS IS UNFORTUNATELY THE RULE AT PRESENT, THAT THE SUSPECTED DOG HAS BEEN KILLED, WHAT THEN?

Cut off his head and send it (packed in ice if the weather be warm) by express, charges paid, to Dr. Hewitt, Red Wing, for the Pasteur test, with a detailed description of the case and of the outbreak associated with it.

A PERSON HAS BEEN BITTEN BY AN ANIMAL SUSPECTED TO BE RABID, WHAT MUST HE DO?

Suck the wound instantly and thoroughly; if on *an* extremity bind a handkerchief or other band snugly around the limb between the wound and the heart, so as to encourage free bleeding. Cleanse the wound with simple hot water or saturated solution in hot water of Boracic Acid, which also promotes bleeding, and dress with frequent renewals of the same, or a saturated solution of Boracic Acid in glycerine.

The experience of Pasteur and his aids, with a practice vastly greater than anyone else with Rabies, is that the use of strong caustics, and of the red-hot iron, is of no benefit but rather an injury.

The wound once thoroughly cleansed as directed above, should be permitted to heal.

*Persons who have been bitten by suspected animals should understand that not more than 16 per cent. of persons bitten by dogs, actually rabid, take the disease, and that, despite the number of outbreaks reported in our State, there is no positive evidence that the disease, in any case was Rabies. Some of the reports, and that by physicians too, state that children supposed to be affected, bark and imitate dogs in other ways. Attention is called to the descriptions of the symptoms of true Rabies in dogs, cattle, and men, which follow, and the hearty co-operation of all intelligent folk is asked to give this circular as wide distribution as possible, that the gross popular misapprehension as to the dreaded disease may be replaced by a reasonable comprehension of the facts.*

RABIES IN THE DOG. The following description we translate from "La Rage," by Dr. Jean Renaud Suzor, Paris, 1887, a pupil of Pasteur's.

"There are two forms of Rabies in the dog; the furious type, in which the animal is delirious and disposed to bite; the mute or paralytic form, in which the dog is silent and paralysed.

I. RABIES FURIOUS. (a). The character of the animal is changed, his behavior is different, he becomes sad and silent, hides himself in dark places, away from noise and tries to sleep, but his sleep is troubled by painful dreams, he starts up, takes a turn, shakes himself and lies down again. He is in a state of constant agitation, or perhaps, in certain rare instances, he is dull, and careless to everything around him, and if one stirs him up he growls but shows no inclination to move. In either case he still obeys the voice of his

master, and shows no inclination to bite. Then his restlessness increases, and if he is in his kennel he piles up the straw of his bedding and buries his chest in it, but finding no relief, he tears it down and scatters it about in rage. In the house he tears the cushions and carpets. In certain cases he exhibits a very lively and inexplicable attachment to another animal or to some persons in the house; at other times he is found licking cold objects. He has visions and hallucinations, he growls, barks, and throws himself on imaginary beings which he seeks to destroy. If you hold a stick towards him he bites it, and without much provocation he bites strangers. All this time he knows his master but his saliva is already virulent and his caresses are to be avoided. The saliva is virulent at least eight days before the symptoms of the disease are well marked.

(b). *A rabid dog has no dread of water* (hydrophobia) but on the contrary, at all stages of the disease, he drinks with avidity, or attempts to do so. When he fails to drink it is from an involuntary contraction of the throat which prevents the act. His appetite may be temporarily increased, but is soon totally lost and replaced by a perversion of taste which drives him to spurn his accustomed food, though he throws himself with voracity upon the most incongruous things. So he destroys and attempts to eat bits of wood, straw, his own excrement, his urine, dirt: they are equally acceptable. At this stage he vomits frequently, and the matters rejected are often tinged with blood, due often to the habit of swallowing things which lacerate the walls of the stomach.

(c). *The bark of the rabid dog is characteristic* and never forgotten when once heard. Boulay describes it as follows: "It is remarkably modified in its sound and its method. Instead of bursting out with normal clearness and consisting in a succession of barks of equal duration and intensity, it is hoarse, subdued, with a lower tone with the first bark given full mouthed, and followed immediately by five, six or eight howls which come from the bottom of the throat, and during the emission of which the jaws are but partially closed instead of closing each time as in the normal bark." Youatt describes this peculiar bark nearly in the same terms.

(d). *The sight of another dog rarely fails to provoke a furious outbreak in a rabid dog*, which constitutes a sure and valuable test of the existence of the disease. The effect is the same in all rabid animals and includes even the peaceful sheep. Man is the only susceptible being who is an exception to this rule. This symptom of fury at the sight of another dog has a peculiar value when one is dealing with an animal which has always exhibited a character gentle and inoffensive.

(e). *In well established rabies the sexual instincts are strongly excited.* In some cases the animal remains gentle and affectionate to the end, but as general rule there soon appears a state of delirious fury the interpretation of which is only too easy. He bites and tears everything thrown in his way if shut up or chained, and if at liberty attacks every animal he meets, and soon man himself. Still he attacks strangers before his master, and animals rather than men. His pupils are dilated and his whole bearing expresses the highest degree of ferocity and cruelty. A rabid dog is silent when tearing his victim, differing in that respect from the healthy one who growls and makes

a great hubbub all the time he is fighting. *At some period of this disease the dog often leaves his home and wanders away.* At a distance he exhibits no peculiarity which would reveal his condition, he keeps his accustomed gait, his tail is erect swinging from side to side as is customary, and does not hang down or between his legs as is so often said. Later on when he is tired his step becomes unsteady and languid, the head hangs low, and the pointed and bloody tongue lolls out of the mouth, the tail hangs listlessly, the sight is failing with the other senses, the animal is less dangerous, but he is not to be trusted; his saliva is more virulent than ever, he can still bite, he is found sometimes, at this stage, lying in ditches alongside roads. After wandering in this way for many hours, even days, he often returns home, where he awakens a pity on the part of persons who ignorant of his condition and without distrust are eager to welcome, to caress and to feed him. About the fifth day, emaciated, exhausted, though more by repeated outbreaks of fury than by lack of food, already paralyzed in the hind-quarters, he surrenders at last, to exhaustion and to paralytic asphyxia.

**MUTE, OR PARALYTIC, RABIES IS A VARIETY OF THE DISEASE.** The periods (*a*) (*b*) (*c*) are the same as in the furious type, though less accentuated. Then as to the periods (*d*) (*e*) the voice is entirely lost; from the very first he can only howl, without a trace of a bark. The lower jaw is paralyzed, and the mouth constantly open, the eyes are wide open, without expression, and always fixed in the same direction. The most marked symptoms are muscular debility, and loss of nervous power. The animal keeps his bed and sleeps at times. He shows no inclination to bite and if he did has not the power. The saliva is just as virulent as that of the victim of furious Rabies.

In the great majority of cases Rabies in either form, is fatal to dogs; but there are authentic instances both of recovery without, and with treatment which are, of course, the rare exception.

**POST-MORTEM APPEARANCES, (AFTER DEATH BY RABIES.)** The tongue and mucous membrane of the mouth and stomach are blue and almost black. In the cavity of the stomach are found, often, a black fluid like coffee grounds, and a strange collection of things which no healthy dog swallows; wool, hair, straw, pieces of wood, coal cinders, soil, fragments of linen, carpet, etc. Youatt and others found this symptom in all their cases, Bruckmuller of Vienna in 54 per cent.

**WHAT IS THE PERIOD OF INCUBATION OF RABIES IN DOGS?** Less than two months in 80 per cent of cases, rarely passing six months.

**RABIES IN THE CAT.** As this has been reported in Minnesota it is worth notice that the symptoms are the same as in the dog; and it is to be remembered that the cat, like the wolf, is most likely to attack the victim on the face and the head. All statistics agree in classing wounds of these regions as the most dangerous of all.

**THE SYMPTOMS OF RABIES IN MAN** should be well understood by physicians so as to be able to judge of a suspected case, and to relieve the mental worry and excitement so likely to accompany a suspicion of the disease. The following is from the same authority as supplied the vivid description of the disease in dogs :

*"In man Rabies assumes the two forms already described, but the delirious and convulsive variety is the most common."*

The established convulsive type naturally divides itself into three periods. In the first that of melancholia, which follows just after the period of incubation, the sick one, whether aware or not, of his danger, whether infant or adult, changes his character, becomes sad, taciturn, and avoids all society; he is besieged by sombre forebodings, has a constant and intense headache, and his sleep is disturbed by startling dreams. In some cases there is itching, or even painful sensations at the seat of the wound. This primary stage of the disease is sometimes wanting, and in any case does not last more than four or five days. It is in this stage that the patient oftentimes manifests an irresistible desire to walk or run; there is a general exaltation of muscular and nervous excitability replacing for the time the melancholy.

*In the second stage, which is the one truly characteristic of the disease,* a condition of general over excitement appears, the respiration become difficult, painful, the inspiration is cut up into frequent sighs. Little by little all the spinal nerves are affected, and there occur spasmodic contractions of the special muscles of the pharynx and larynx. There is increased activity of all the senses; noise—or the sight of water—or any brilliant object, the least current of air, an odor, a sound, however feeble, are often enough to provoke a convulsive spasm threatening asphyxia, and with protrusion of the eyeballs. About the second or third day occurs the frequent symptom of spitting; the mouth at first dry, becomes moist and fills up with mucus and froth. In very many cases the sick one has hallucinations of sight and hearing. The voice is rough, hollow, convulsive, spasmodic, broken and sometimes recalls the bark or the howl of the dog. During the convulsions the patient often bruises or wounds himself; he still has inclination to run, and to go away from home. These attacks alternate with melancholy and despair. Temperature runs high as in lockjaw, and increases for the first hour after death. It may reach 43 C. (109.4 F.).

*In the third period paralysis has reached all the organs,* the intelligence is clouded, the patient is exhausted, and surrenders at last when the centres of respiration and circulation are paralyzed."

THE PERIOD OF INCUBATION IN MAN. Brouardel's statistics are quoted in France where the diagnosis has been much more exact than in England or in this country. "In one series of 170 cases 87 per cent were rabid in the course of the first three months. In another series of 93 cases 78 per cent developed the disease within three months. He concludes that Rabies declares itself oftenest within two months after the inoculation; rarely after three months; and with exceeding rarity after six months. Below 20 years of age the mortality is 31 per cent and over that age it is 62 per cent."

SEASON OF THE YEAR AS AFFECTING THE OCCURRENCE OF RABIES. The statistics of l'Institut Pasteur for three years, agree in putting the maximum mortality at the end of winter and the beginning of spring. In July and August the disease decreases, reaching its minimum in September and October, to increase again in February. It will be noted that these results are the exact opposite of the seasons established by popular opinion.

SYMPTOMS OF RABIES IN RUMINANTS, CATTLE. Boulay, one of the ablest and most observant men of his time, summarises the observations made by himself on twenty-seven head of cattle who had Rabies.

*First day.* Slight colicky pains, or something very like, as the animal no sooner lies down than he gets up again. The senses are excited, there is very sudden rise in temperature, itching pains at the seat of the bite.

*Second day.* Less agitation, slight tenesmus; lower temperature of body and at seat of the bite.

*Third day.* Commencing paraplegia (paralysis of the lower half of the body) strong tenesmus (straining at stool) the discharge from the bowels covered with mucus of a yellowish brown tint, spinal column not sensitive to pressure, and temperature falling. These symptoms are accompanied by bellowing.

*Fourth day.* Complete paraplegia; violent straining to stool; excrement covered with frothy mucus; foaming at the mouth; bellowing more frequent.

*Fifth day.* Same symptoms with considerable fall in temperature; bellowing more rare; sense of taste not impaired." Death by paralysis.

THE PERIOD OF INCUBATION was in three-fourths of these animals from three to six weeks, and in the remainder it varied between six weeks and three months. One dog bit all the affected animals, and it is not proved that domestic cattle bite each other when rabid. The inoculation with the brains of these cattle produced the disease.

C. N. H.

# APPENDIX

CONTAINING THE FOLLOWING SPECIAL REPORTS:

- No. I.—Copies of the laws relating to Public Health.
- No. II.—A partial list of cities and villages of Minnesota employing Health Officers, showing length and character of service, and compensation of such officers.
- No. III.—Circulars upon the different duties of Health Officers published by the State Board of Health.
- No. IV.—The relative mortality and seasonal distribution of diseases causing the greatest mortality in Minnesota for five years.
- No. V.—The notification of infectious diseases within the State: inter-State, and from the seaboard to interior States.
- No. VI.—The use made of seaboard notification in Minnesota, in 1891 and 1892.
- No. VII.—The Minnesota station for the production and distribution of calf vaccine.
- No. VIII.—The infectious diseases of domestic animals in 1891-92.
- No. IX.—The Immigration Inspection Service against cholera, 1892, of the State Board of Health.
- No. X.—Report on leprosy in Minnesota, to January 1, 1893.
- No. XI.—The Financial Statement of the State Board of Health, from December 31, 1890, to January 1, 1893.

## APPENDIX NO. II.

*A PARTIAL LIST OF CITIES AND VILLAGES OF MINNESOTA  
EMPLOYING A HEALTH OFFICER SHOWING  
LENGTH AND CHARACTER OF SERVICE,  
AND COMPENSATION FOR 1892.*

NOTE—Population is that of census of 1890. Figures under "salary" represent dollars.

LOCALITY.	POP.	SALARY.	TERM OF SERVICE.	WORK DONE 1892.
Alexandria	2118	none	1 yr.	May inspection—not in detail.
Argyle	306	none	10 yr.	Inspection—slaughter houses removed.
Atwater	429	10.00	6 yrs.	May inspection—nuisances ordered abated.
Ada	622	none	9 mos.	May inspection.
Annandale	211	none	2 yrs.	May inspection—quarantine scarlet fever.
Appleton	994	50.00	6 yrs.	May inspection—infected diseases quarant'd.
Adrian	671	25.00	5 yrs.	May inspection—quarantine diphtheria.
Albert Lea	3305	31.00*	2 yrs.	May inspection—quarantine diph. and scar.
Anoka	4252	50.00 (1)	2 yrs.	Nothing.
Austin	3901	100.00	6 yrs.	May inspection—nuisances removed.
Brownsville	282	none	8 yrs.	May inspection—2 days.
Bird Island	441	none	9 yrs.	" " —3 or 4 days.
Blue Earth City	1569	15.00	4 yrs.	" " —quarantine scar. and diph.
Barnesville	1059	none	1 yr.	" "
Browns Valley	498	none	5 yrs.	" " —no infectious diseases.
Buffalo	696	none		Not stated.
Barnim	417	none	1 yr.	May inspection—½ day.
Benson	877	35.00	9 mos.	May inspection.
Browersville	.86	none	1 yr.	May inspection.
Brainerd	5703	300.00	3 mos.	Nothing.
Cannon Falls	1078	25.00	9 yrs.	May insp'n—not in detail, ord. nuisances abated
Carver	625	15.00	2 yrs.	May inspection.
Caledonia	927	5.00	3 mo. (5)	Nothing.
Clarkfield	178	25.00	9 mo.	May inspection.
Canby	470	50.00	5 yrs.	" " —nuisances and infectious dis.
Carlton	612	75.00	1½ yrs.	May inspection—one week.
Cologne	193	none		Nothing.
Cloquet	2530	100.00	3 yrs.	May inspection—4 d'ys infec'd slaughter house.
Crystal	1074	22.00*	2 y. 9 m.	" " —none.
Cambridge	258	none	3 yrs.	Nothing, no infectious diseases.
Chaska	2210	50.00	9 mo.	May inspection—quarantined scar. and diph.
Crookston	3157	66.00	7 yrs.	" " —infectious disease.
Dundas	554	none	7 yrs.	May inspection—creamery cleaned.
Dassel	552	none	5 yrs.	" " —2 days.
Dawson	418	10.00	6 yrs.	Nothing.
Delavan	252	none	1 yr.	May inspection.
Delano	889	fees		" " —care of nuisances.
Dodge Centre	633	30.00	9 yrs.	" "
Duluth	33115	100.00	3 yrs.	" " —quarantine infections dis.
Edgerton	178	none	6 yrs.	May inspection—no infectious diseases.
Elizabeth	135	none	none	Nothing.
Eyota	377	none	9 mo.	May inspection—inf. dis. quarantined.
Evansville	452	none	7 mo.	" " " " 5 cases measles
Excelsior	619	none	4 yrs.	" " "
Ely	901	100.00	3 yrs.	" " —no scar. 1 case Diph.
Fondtain	248	10.00	5 yrs.	May inspection.
Fertile	273	25 avg*	8 yrs.	May inspection—10 days.
Farmington	657	none	6 yrs.	" " —quarantine infectious disease.
Fairmont	1205	25.00	10 yrs.	" " "
Fosston	207	none	1 yr.	" " —7 days, no infectious disease.
Faribault	6520	200.00	5 yrs.	" " —off trad's abolish'd, quar diph.
Fergus Falls	3772	sm fees	2 yrs.	" " —quaran'ed infectious diseases.
Grand Meadow	373	none	1 mo.	Nothing.
Glencoe	1649	60.00*	1½ yrs.	May insp, quar and prevent infectious diseases.
Gibbon	282	none	2 yrs.	No work done, no infectious diseases
Glenwood	627	10.00	8 mo.	May inspect'n,—quarant'ed infectious diseases.
Graceville	508	10.00	2 yrs.	" " —quarantined 4 immigrants.
Hancock	218	none	2 yrs.	May inspection—no infectious disease.
Hawley	270	4.00 day	8 mo.	Nothing.
Hokah	582	fees	2 yrs.	May inspection—quarantine scar. and diph.
Hector	354	none	4 yrs.	May inspection.
Herman	322	25.00	6 yrs.	No inspection.
Halstad	799	none	2 yrs.	May inspection—quarantined diphtheria.
Howard Lake	610	15.00	10 yrs.	Removed dead horse.
Houston	536	none	6 mo.	May inspection—quarantined infectious disease
Hastings	3705	75.00	5 yrs.	Inpection not in detail.
Henderson	909	25.00	2½ yrs.	Quarantined scarlatina and diphtheria.
Hallock	302	none	4 yrs.	May inspection—no infectious disease.
Janesville	921	none	10 yrs.	" " —quarantined diphtheria.
Jordan	1233	10.00	9 mo.	" "
Jasper	372	10 & fee	3 mo.	" "

<i>Locality.</i>	<i>Pop.</i>	<i>Salary.</i>	<i>Term of Serv.</i>	<i>Work done 1892.</i>
Jackson	720	none	3 yrs.	" " May inspection--nuisance abated.
Kirkhovea	(3)	5 to 25	5 yrs.	Nothing.
Kenyon	666	10.00	7 yrs.	May inspection--no infectious diseases.
Kasson	992	none	2 yrs.	May inspection--quarantined diphtheria.
Little Falls	2354 (2)	150.00	5 yrs.	" " --quar scarlatina and glanders.
Lakefield	275	25.00	2 yrs.	Inspected nuisances, orders abated.
Lanesboro	898	5.00	9 yrs.	May inspection--no infections diseases.
Lake Park	349	5.00	5 yrs.	" " --slaughtering nuisance abated.
Lewiston	324	none	6 yrs.	May inspection.
Lakeville	258	none	2½ yrs.	" " --quarantined diph. and scar.
Lake Crystal	824	15.00	5 yrs.	" " --quarantined diph. and scar.
Le Roy	523	25.00	1 yr.	" " --quarantined diph. and scar.
Luverne	1466	60.00	4 yrs.	Inspected village.
Lake Benton	513	15 aveg*	3½ yrs.	May inspection.
Le Sueur	1763	50.00	9 mo.	" " --10 days.
Lake City	2128	25.00	5 yrs	" " --back yards cleaned.
Monticello	503	none	5 yrs.	May inspection--quarantined glanders.
Morris	1266	10.00	12 yrs.	" " --quarantined diphtheria.
Marshall	1203	150.00	9 mo.	" " --no cases scarlatina.
Madison Lake	729	none	9 mo.	May inspection.
Mazeppa	(3)	20.00	17 mo.	" " --10 days.
McIntosh	(3)	none	3 yrs.	" " --nuisance abated.
Mapleton	607	25.00	4 yrs.	" " --quarantined diph. and scar.
Montevideo	1437	25.00	1 yr.	" " --quarantined scarlatina.
Madelia	852	10.00	8½ mo.	" " --2 cases diphtheria.
Moorhead	2088	none	10 mo.	" " --quarantined diph. and scar.
Mankato	8838	100.00	15 yrs.	" " --no infectious diseases.
Nicollet	283	none	3 yrs.	May inspection.
New London	211	none	3 yrs.	" " --no infectious diseases.
New Prague	955	50.00	5½ yrs.	" " --10 days.
New Duluth	(3)	none	4 yrs.	May inspection.
Norwood	385	10.00	4 yrs.	" " --quarantined scarlatina.
New Trier	129	12.00	2 yrs.	" " --quarantined scarlatina.
New Brighton	†	none	2 yrs.	" " --nothing.
New Paynsville	†	none	2 yrs.	Nothing.
North Branch	685	25.00	3 yrs.	May inspection.
Olivia	263	none	6 mo.	May inspection--isolated scarlatina.
Owatonna	3849	75.00	1½ yrs.	" " --quarantined diphtheria.
Oskakis	472	none	2½ yrs.	" " --quarantined diphtheria.
Park Rapids	415	3.00 day	6 mo.	May inspection--5½ days, no infections disease.
Pipestone	1232	35.00	6 yrs.	" " --infect dis, man & animal quar.
Princeton	516	none	9 mo.	" " --quarantined scarlatina.
Pine Island	548	10.00	6 yrs.	" " --2 cases diphtheria quarantine.
Pelican Rapids	624	25.00	5 yrs.	" " --quarantined diphtheria.
Perham	761	35.00	4 yrs.	" " --2 days, quarantined scarlatina.
Pine City	535	none	9 mo.	" " --6 houses diph. quarantine.
Preston	1588	none	8 yrs.	May inspection--quarantined infections disease.
Red Wing	6294	200.00	4 yrs.	" " --one suit, quar rabies of dogs.
Renville	457	none	6 yrs.	Nothing.
Royalton	582	none	2 yrs.	May inspection--quarantined scarlatina.
Redwood Falls	1238	10.00	2½ yrs.	" " --whole city.
Red Lake Falls	774	25.00	4 yrs.	" " --no infectious diseases.
Rochester	5321	150.00	8 yrs.	" " --quarantined infectious disease
St. James	939	10.00	3 yrs.	Nothing.
Springfield	716	50.00	2 yrs.	May inspection--quarantined 20 cases diph.
Slayton	380	none	6 yrs.	" " --quarantined infectious diseases
Stephen	265	none	1 yr.	Nothing.
Sherburne	316	10 to 15	7 yrs.	May inspection--quarantined scarlatina.
Sacred Heart	327	none	1 yr.	" " --no infectious diseases.
Sauk Rapids	1185	none (4)	2 yrs.	" " --2 days, quarantined scarlatina.
St. Charles	1178	25.00	4 yrs.	" " --whooping cough.
Silver Lake	562	none	No H. O.	Sanitary inspection--constant supervision.
Stillwater	11260	200.00	10 yrs.	May inspection--no infectious diseases.
Two Harbors	1244	10.00*	9 mo.	May inspection--quarantined diph scar fever.
Tyler	139	Curses	No H. O.	May inspection--no infectious diseases.
Thief River Falls	191	10.00	9 mo.	May inspection--quarantined scarlatina.
Verndale	635	none	2 yrs.	May inspection--no infectious diseases.
Villard	203	none	3½ yrs. (5)	May inspection--no infectious diseases.
Wells	1208	none	1 yr.	May inspection--5½ days.
Wykoff	335	none	10 yrs.	No inspection--ordered nuisances abated.
Willmar	1825	50.00	3 yrs.	May inspection--quar. inf. disease of animals.
Wadena	95	40.00	1½ yrs. (5)	" " --not detail.
Waterville	937	15.00	10 yrs.	" " --ordered nuisances abated.
West Duluth	3368	600.00	9 mo.	Quarantined and disinfected scarlatina.
Winthrop	438	none	6 mo.	No May inspection.
Warren	618	none	2 yrs.	May inspection--burial of dead animals.
Wabasha	2487	25.00	1 yr.	May inspection--quarantined diph and scar.
Winona	18208	300.00	10 yrs.	" " --quar. infectious diseases.
Zumbrota	867	none	5 yrs.	May inspection.

\* Fees.      † Organized since censns.  
returned in census.      (4) \$6.00 '91, none '92.      (1) in 1891.      (2) 1892.      (3) not separately  
(5) Acting H. O.

The following memoranda furnished by the Commissioners of Health of cities are submitted as part of this report:

Dr. E. S. Kelley, Commissioner of Health of Minneapolis, reports as follows:

"Term of Commissioner of Health, two years; salary of Health Commissioner, \$2,500; Medical Inspector, \$1,000; Sanitary Inspector, \$1,000; Regular Appropriation, \$25,000; Garbage removal by contract, \$17,000; Contingent Fund (total), \$20,000. Also \$5,000 for contagious disease hospital to be built immediately. Besides the City Council can at pleasure appropriate, from contingent fund, any amount of money necessary for extra emergency. We are well fixed financially as becomes the largest city in the State by fifty thousand inhabitants."

Dr. Henry F. Hoyt, Commissioner of Health of St. Paul, reports as follows:

"The term of office of the Commissioner of Health of the City of St. Paul is four years; salary, \$2,400 per annum. I am allowed one assistant commissioner, salary \$1,200 per annum; one inspector of contagious diseases, salary \$900 per annum; one live stock inspector, salary \$900 per annum; two meat inspectors, salary \$900 per annum each; two health officers, salary \$900 per annum each; one watchman at the small-pox infirmary, salary \$500 per annum; one watchman at the city dump, salary \$500 per annum; one book-keeper, salary \$900 per annum.

That is the force of this department at present. During the summer months I was allowed four more health officers. Our regular appropriation for the last two years has been \$12,000 a year, but owing to the increased expenditures connected with the small-pox out-break two years ago, the excess was deducted from our appropriation for last year, so that for 1892 I was compelled to run this department on the sum of \$9,850.02. We have no provision for any contingent fund, but hope to get an increase in our appropriation and also to be allowed a contingent fund in the legislature this winter if possible."

Dr. W. G. Goffe, Health Officer Duluth, reports:

"Term of service, three years; salary, \$1,000 a year. Work done, superintending all the inspection, quarantining infectious diseases and attending to the various duties of Health Officer. Have done all the work myself with my assistant."

Dr. Franklin Staples, Health Officer Winona, reports:

"Term of service, about ten years; salary, \$300 a year. My office is the City Health Office. I have one sanitary inspector who reports at least three times each day and receives his instructions. He is on duty all of the time. My office clerk expends about one-half of his time in the Health Officer service. This is in the work on Vital Statistics, burial permits, records concerning contagious diseases and the quarantine of the same. In the matter of inspection it is going on all the time under my direction. In the month of May a special general inspection is made and reported in my annual report.

The members of the Local Board are always ready to aid the Health Officer in any way possible. The board holds its meeting at stated times and the Health Officer makes his reports."

Dr. B. J. Merrill, Health Officer Stillwater, reports:

"Term of service since 1883; salary \$200 per annum. Executive officer of board directing affairs with aid of sanitary inspector for detail work. Sanitary inspection, making a house to house inspection of the entire city, commencing in April and continuing to October 15. He is constantly employed at the work, as soon as one tour is complete he begins another. He reports daily to the Health Officer and is under his immediate supervision. Money value of work done \$1,000 for time expended. Cannot give exact time spent in this work. The city has been kept in an excellent sanitary condition and infectious diseases, both in man and animals, kept well in hand. The other

members of the board have allowed me full swing, and backing me up if necessary."

Dr. C. F. Warner, Health Officer, Mankato, reports:

"Term of service, about 15 years. Salary, \$100 per annum.

Organized and supervised the details of the May inspection, and a thorough re-inspection in August and September, 1892.

From August to January, 1893, had to direct and instruct through the sanitary inspector 60 families (100 cases) who had diphtheria, and 13 who had scarlatina, (17 cases) while they were in quarantine."

The members of the Board have rendered all aid asked for, one was selected as a sanitary inspector and he was faithful in his work."

Dr. Warner adds: "Health Officers should receive a salary in incorporated towns containing a population of 3,000 or less, \$200 per annum; and those containing a population of 3,000, and less than 10,000, \$500 per annum; those over 10,000 and under 20,000, \$1,000; for cities over 20,000, \$1,000, with \$20 for each 1,000 population afterwards. Sanitary inspectors should be clothed with police authority and receive not less than \$1.50 per day.

Dr. F. R. Mosse, Health Officer, Rochester, reports:

"Term of service, 8 years. Salary, \$150 per annum, since April 1, 1892. Attended to May inspection—2 weeks' time taken. Clerical work and notifications and re-inspections to ascertain if orders issued to clean up attended to, looking up nuisances complained of and superintending removal or same; 200 visits made, quarantining and disinfecting cases contagious diseases. Members of Board attends meetings and interest manifested in Board work. All the support and influence given by lay members that is necessary for good work. Salary of Health Officer should be the same as city attorney in Rochester, \$300 per annum."

Dr. R. N. Jackson, Health Officer, Faribault, writes:

"Term of service, since April, 1888. Salary, \$200 per annum. May inspection easier this year than formerly due to assistance of police. Have spent quite a good many days on offensive trades, slaughter houses in adjoining townships, rendering in city limits, etc. Secured the abolishing of a large number of vaults, (holes in the ground) and the putting in of water tight boxes. Spent several days on trail of glandered horses. A day helping a poor man get redress for diseased meat sold him. A good many days looking into minor nuisances, pig pens, cess pools, etc. Quarantined 50 or 60 families of measles, 16 families of diphtheria, attending all infectious funerals, and giving personal disinfection, attending personally to the disinfection of all houses. A good deal of time spent answering inquiries of Boards of Health of neighboring towns who have no physician on their Board. Time given to official work probably amounts to 4 or 5 days a month. The members of the Board have given me all the aid I have asked, and that has been a good deal. I cannot imagine any change that would improve the present order. My co-laborers are intelligent, fearless and impartial. The present law has this in its favor: Every year a good citizen graduates in sanitary work and becomes ever after a firm supporter and advocate of proper sanitation. The medical officer, without the citizens' support this law gives him, would be pretty lame."

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*Appendix Nos. I and III being "inserts," are put immediately after the report.*

## APPENDIX NO. IV.

*THE RELATIVE MORTALITY AND SEASONAL DISTRIBUTION  
OF DISEASES CAUSING THE GREATEST MOR-  
TALITY IN MINNESOTA.*

(Abstracted from the returns of death for the years 1887-91.)

This little contribution towards the solution of some of the questions which underlie the work of finding, controlling or preventing disease, has been made possible by the work of the State Public Health Service (the Executive Officers of the Local and State Boards of Health) in the collection and compilation of the returns of death for the last five years.

By a mutual arrangement the names of all physicians in attendance upon the cases whose deaths are recorded, are reported to the Secretary in the returns monthly, just as they appear as attending infectious disease in the reports of those diseases by the Health Officers and Chairmen.

In this way the help of the profession is directly obtained for more accurate returns of the causes of death. The result has been a very great improvement, and the addition of many important facts to our knowledge of the character and relations of different outbreaks, of infectious diseases particularly.

The reports of 27,320 deaths from the causes specified have been tabulated for this study and all cases of which there was any reason to be doubtful have been excluded and classified as "ill-defined" in the general returns. Very many verifications have come through the "obligatory notification of infectious diseases."

The Meteorological table which will be found with the "Graphic Charts" was constructed from the Signal Service Report.

The charts are reduced copies of those in use daily in my office, which corrected frequently, enable us to have a fair idea of the seasonal and comparative mortality of prevailing diseases.

The record of each disease is in this way made visible for each month of the entire time, and each year's record is comparable with the rest. The average of the five years is recorded by the double line. The mortality in terms of age is given for each disease except Diphtheria—it was not ready when the chart was drawn.

For anyone interested in work of this class it is needless to go into details which the charts enable him to easily work out, but it is permissible to state that they condense, for such persons, a large amount of information in a very accessible shape.

The data here presented are but a small part of that which will be found distributed through the tables of the "Report on the Vital Statistics" to which readers interested are referred.

The tables made up each month, from the returns at hand of the previous month, and published in PUBLIC HEALTH IN MINNESOTA (the last number in this Appendix), presents another method of using the statistics to show which their relations to centres of population, their distribution, and the deaths to 1,000 living. This last proportion is corrected to the census population of each class (1890), and is of course larger than the fact because these populations are larger than they were in 1890. If this is understood it is possible for any one interested to apply the correction, which is not, unfortunately, a number upon which there is any satisfactory agreement.

Minnesota Vital Statistics - Deaths

# Graphic Charts

Illustrating the mortality & seasonal prevalence of  
certain diseases compiled from

The Monthly Returns

of causes of death for five years

1887 - 1891

with

Meteorological Means

for the same periods

by

Charles N. Hewitt M.D.

Secretary and Executive Officer  
State Board of Health & Vital Statistics



# Meteorology of Winona

Monthly Means - Temperature, Precipitation,  
Wind + Barometer for each year (1887-91)  
with average of 5 years. 11/15/92.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly Average
------	------	------	------	------	-----	------	------	------	-------	------	------	------	----------------

## Temperature - (deg. Fabs.)

1887	31	27.7	30.5	44.1	61.7	66.3	72.4	75.8	57.3	40.3	26.9	10.9	40.0
1888	52	9	15.8	37.3	47.8	61.7	70.5	63.0	55.2	41.2	31.4	22.8	38.7
1889	15.6	7.7	33.3	43.6	54.2	63.8	69.5	68.4	55.8	42.7	27.3	21.2	42.1
1890	4.0	9.2	16.5	43.6	47.1	65.9	67.1	62.1	54.4	45.4	33.2	21.8	40.5
1891	16.5	8.0				62.2	65.6	65.0	63.0	46.6	24.0	27.6	42.2
Ave's.	6.6	8.1	23.3	43.1	52.7	64.4	69.4	64.7	57.5	43.2	28.5	20.8	40.4

## Precipitation - (in inches)

1887	1.14	.70	34	2.23	1.78	3.84	3.35	3.04	2.48	1.52	.86	1.60	1.93
1888	1.01	.48	1.79	3.06	5.02	4.46	5.00	1.48	1.66	1.58	.38	.50	2.24
1889	7.50	.87	.74	1.67	1.95	2.41	2.83	3.46	2.07	.09	1.10	1.56	2.21
1890	1.01	.68	.94	1.54	2.15	4.62	2.82	2.78	2.89	3.17	.51	1.14	1.95
1891	1.09	1.66				.95	2.99	2.73	3.72	1.87	1.24	2.55	2.41
Ave's.	2.35	.90	.95	2.04	2.72	4.10	3.42	2.85	2.39	1.65	1.02	1.27	2.14

## Wind -

1887	S.W.	N.W.	N.W.	N.	N.E.	S.E.	N.	S.E.	S.E.	N.W.	S.W.	N.W.	
1888	W.	N.W.	N.W.	N.W.	N.W.	S.E.	S.W.	S.W.	S.E.	W.	S	N.W.	
1889	N.W.	N.E.	N.W.	N.W.	N.W.	S.	S.	S.	S.	S.	N.W.	S.	
1890	N.W.	N.W.	N.W.	S.	N.W.	S.E.	S.	S.E.	S.	N.W.	N.W.	N.W.	
1891	N.W.	N.W.				S.E.	N.W.	N.W.	S.	N.W.	N.W.	S.	
Ave's.	N.W.	N.W.	N.W.	N.W.	N.W.	S.E.	S.W.	S.	S.	N.W.	N.W.	W.	

## Barometer -

1887	30.04	30.02	30.3	29.90	29.98	29.98	29.98	30.04	30.03	30.03	30.03	30.01	30.02
1888	30.03	30.03	30.17	30.13	29.95	29.81	29.97	29.98	30.03	29.96	30.13	30.05	30.02
1889	30.07	30.07	30.0	30.00	29.97	29.93	29.93	29.96	29.94	30.15	30.08	30.03	30.09
1890	30.22	30.14	30.16	30.07	30.00	29.89	29.93	29.98	30.04	29.97	30.08	30.10	30.04
1891	30.03	30.05				29.97	29.98	29.95	29.97	30.05	30.06	29.90	30.00
Ave's.	30.07	30.08	30.11	30.02	29.98	29.92	29.96	29.98	30.00	30.03	30.08	30.02	30.02

Arranged by F.T. Williams, Observer at Red Wing  
Minn. for State Board of Health.



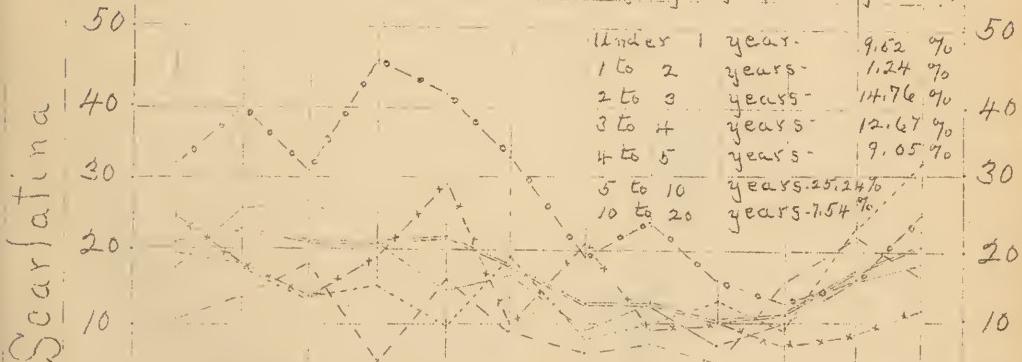
# Minnesota Vital Statistics - Deaths

Scarlatina-Measles - 1887-88-89-90-91 10/15/92

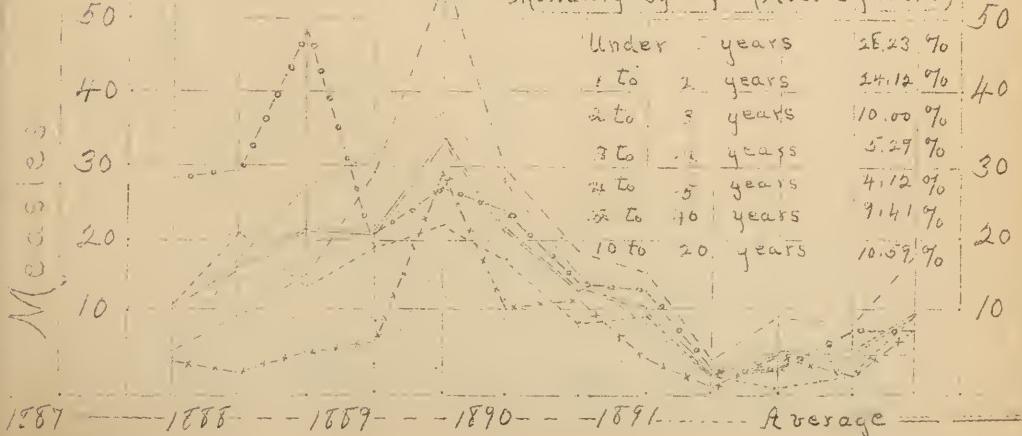
Comparative Statement of Mortality by Months	Deaths from all causes -	1887	1888	1889	1890	1891
	Deaths from Scarlatina-					
	Percent. of Scar. to all causes -	194	145	337	165	205
	Deaths from Measles -					
	Percent. of Meas. to all causes -	185.	216.	225.	88.	136

Jan Feb Mar Apr May June July Aug Sept Oct Nov Dec

Mortality by Age (Aves. 5 yrs. 87-91)



Mortality by Age (Aves. 5 yrs. 87-91)



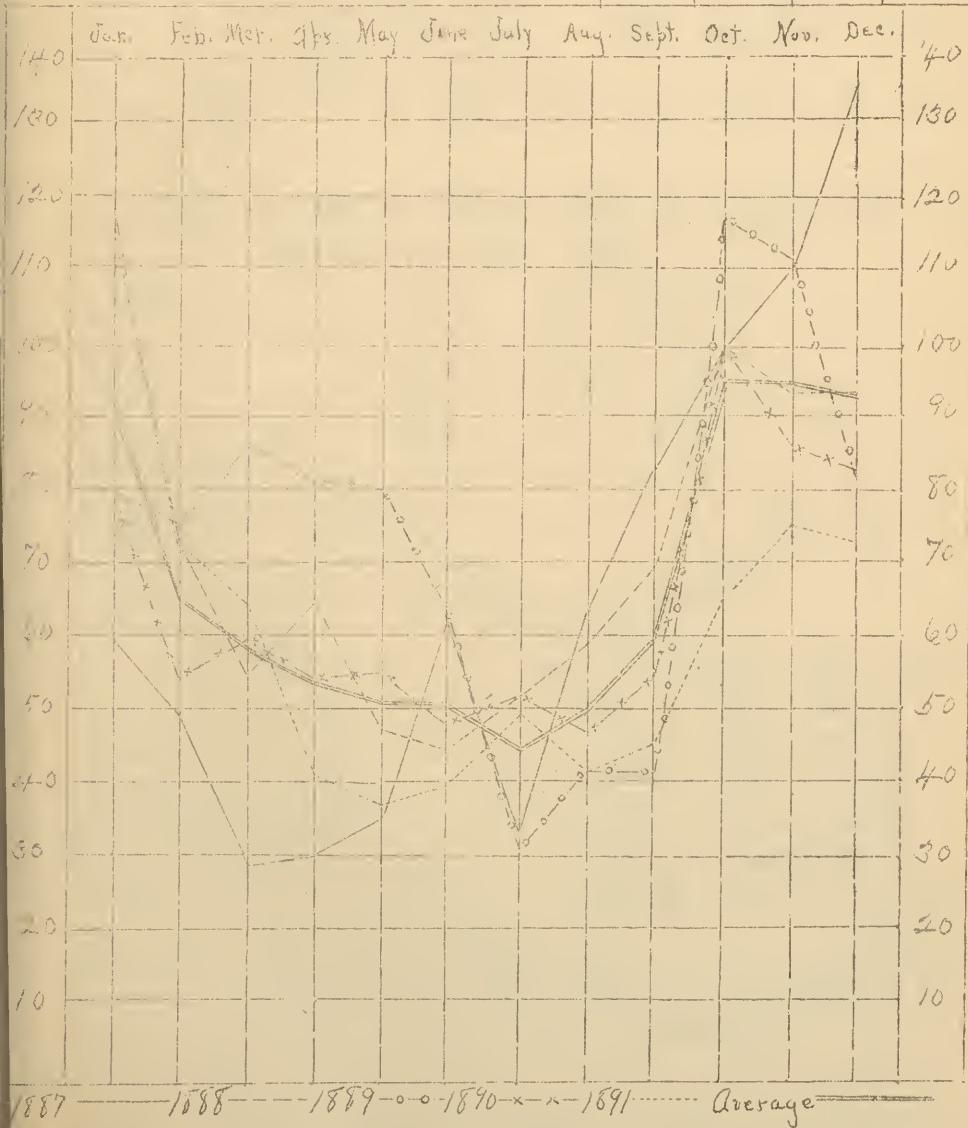
1887 -- 1888 -- 1889 -- 1890 -- 1891 -- Average



# Minnesota Vital Statistics - Deaths

Diphtheria 1887-1888-1889-1890-1891. 10/15/92

Comparative Statement		1887	1888	1889	1890	1891
Deaths from all causes-		13010	15018	14807	14492	14714
Deaths from Diphtheria-		988	864	889	772	720
Percent of Diph. to all causes		5.9	6.0	5.85	5.33	5.6





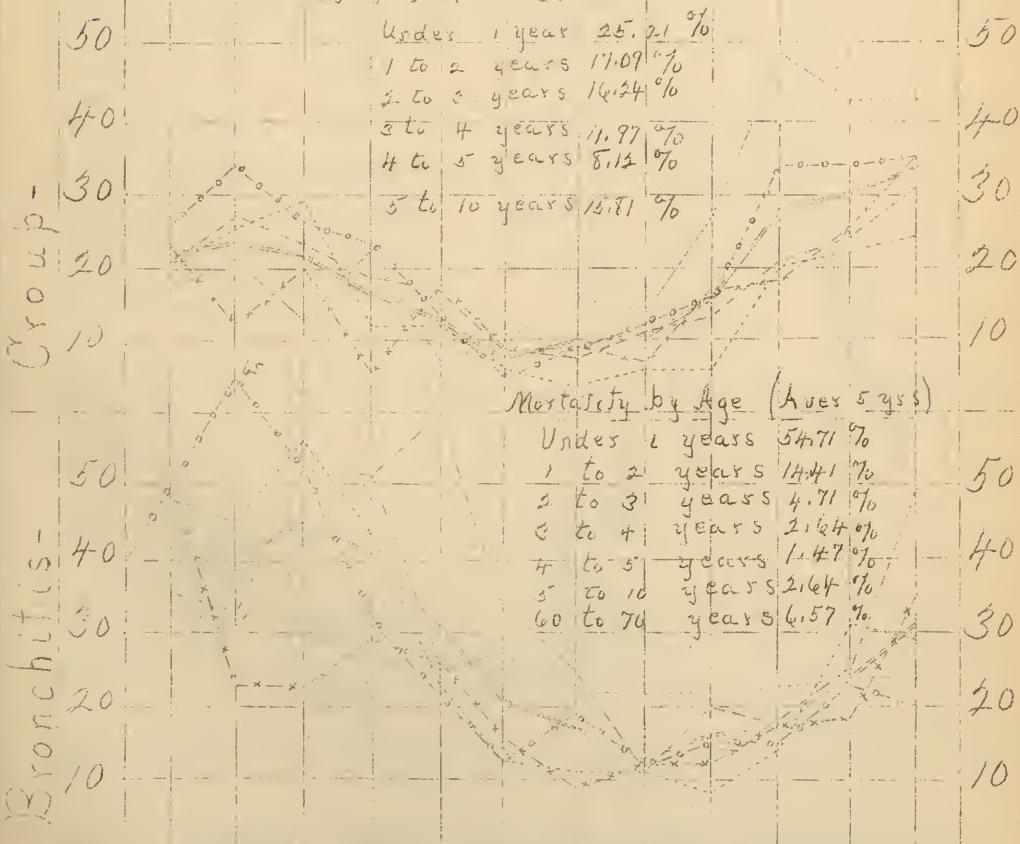
# Minnesota Vital Statistics - Deaths

Bronchitis - Croup. 1887-1888-1889-1890-1891  
19/26/92.

Comparative Statement of Mortality by Months	Deaths from all causes -	1887	1888	1889	1890	1891
	Deaths from Bronchitis -	13010	15018	14807	14492	14714
	Percent of Bronch's to all causes -	2.62	2.75	2.23	1.88	2.24
	Deaths from Croup -	283	225	268	205	188
	Percent of Croup to all causes -	2.13	1.47	1.81	1.41	1.28

Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.

Mortality by Age (Ages 5 yrs &)



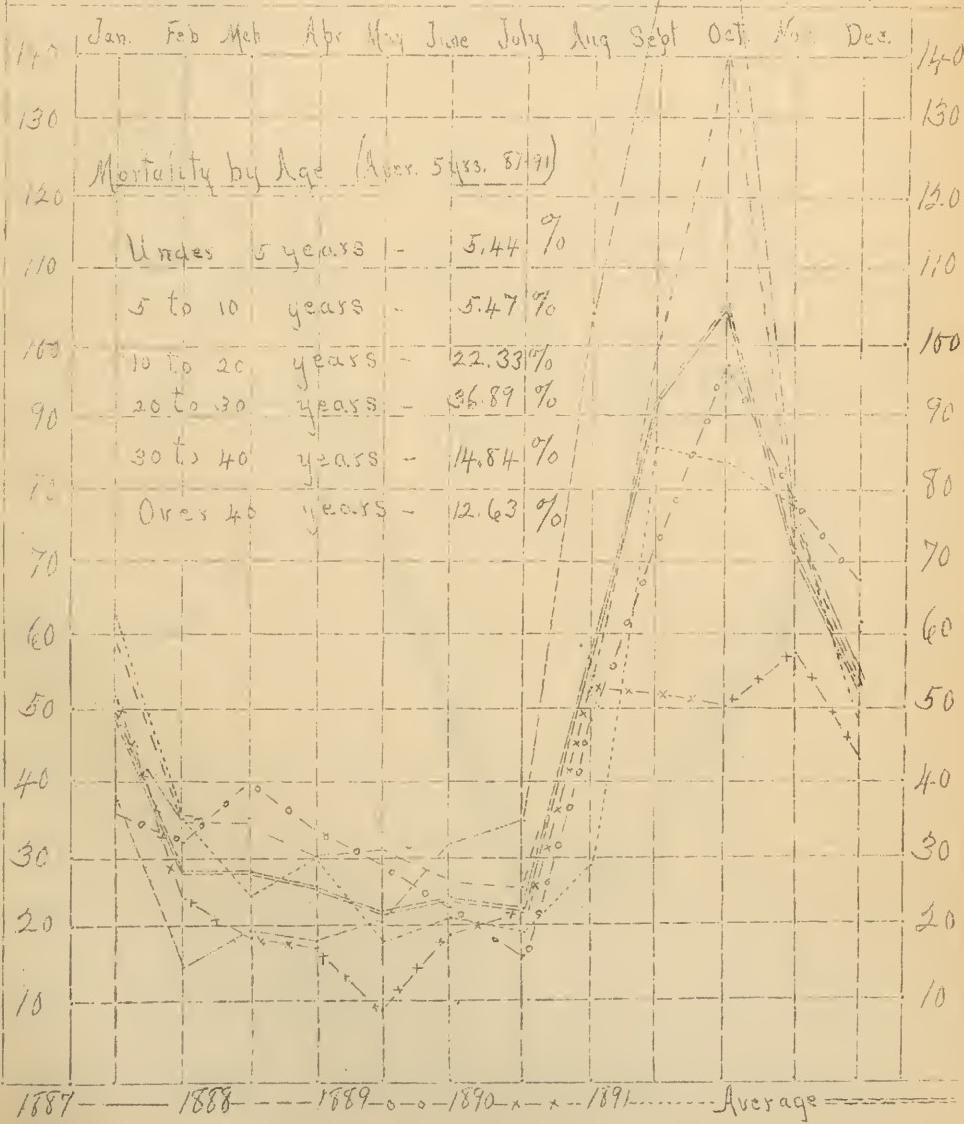
1887 - 1888 - 1889 - 1890 - 1891 - Average



Minnesota Vital Statistics - Deaths  
 Enteric (Typhoid) Fever 1887-88-89-90-91. 100%

Comparative  
 Statement  
 of  
 Mortality  
 by  
 Months

	Deaths from all causes -	13010	15018	14807	14492	14714
	Deaths from Enteric Fevers -	717	662	572	418	534
	Percent of Ent. F'rs. to all causes -	5.57	4.41	3.86	3.03	3.63



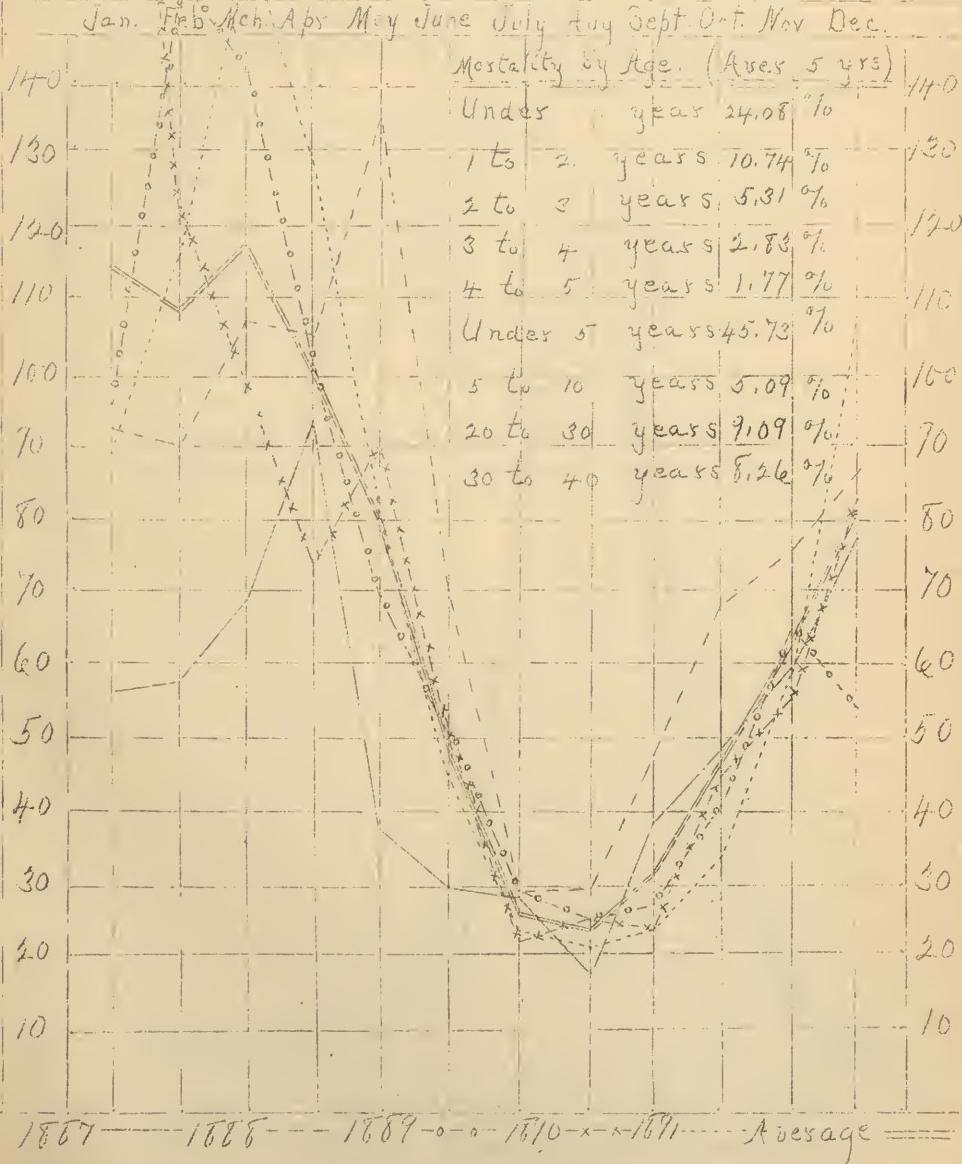


# Minnesota Vital Statistics - Deaths

## Pneumonia 1887-88-89-90-91 10/27/12

Comparative Statement Deaths from all causes - 1887 1888 1889 1890 1891  
Deaths from all causes - 13010 15018 14839 41214 714

Mortality by Months	Deaths from Pneumonia	Percent of Pneumonia to all deaths	1887	1888	1889	1890	1891
Jan.	217	7.35	858	724	891		
Feb.	117	6.22	5.77	6.45	6.09		
March	156	11.69					
April	116						
May	110						
June	105						
July	100						
Aug.	95						
Sept.	90						
Oct.	85						
Nov.	80						
Dec.	75						



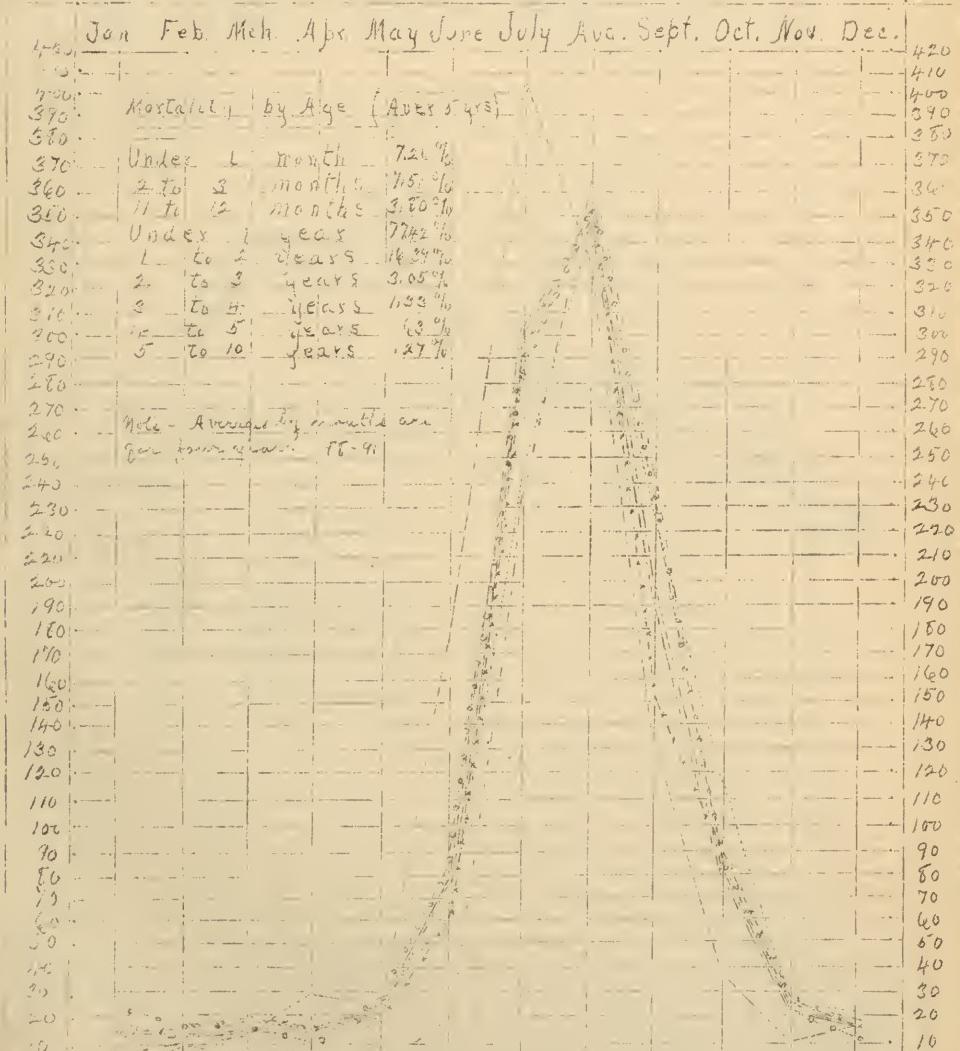


## Minnesota Vital Statistics - Deaths.

## Diarrhoeal Diseases of Children 87-91

10/1/192

Comparative Statement	Deaths from all causes	1877	1888	1879	1890	1891
of Mortality by Months	Deaths from Diarrh' D. of Chil.	1189	1021	1165	1077	1124
	Per cent. of D. of C. to all causes	11.15	6.70	7.19	7.43	7.65
		11.75	6.80	7.79	7.26	



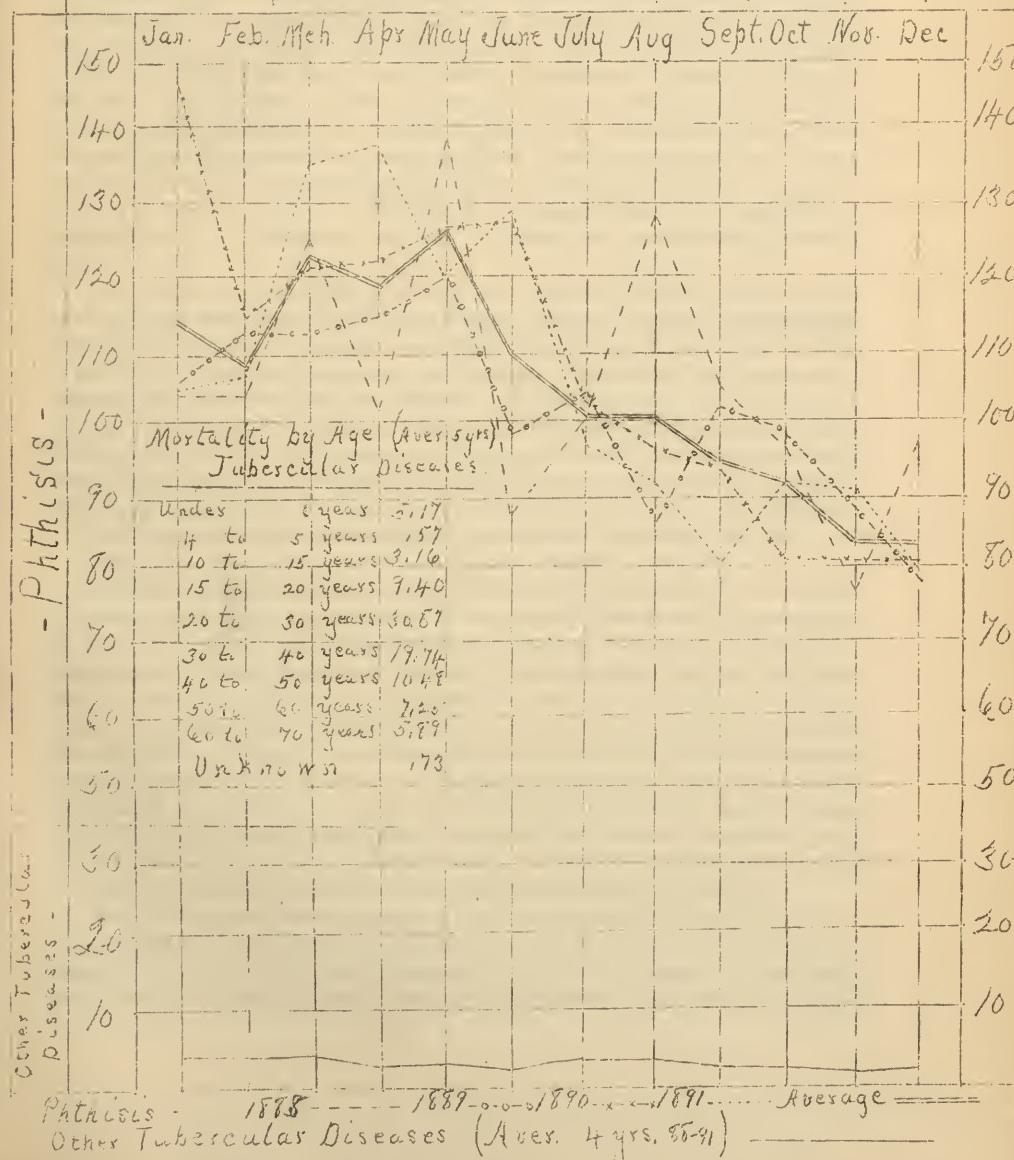
1887 1888 1889 1890 1891 Average  
note - The above scale is  $\frac{1}{3}$  that of other charts.



# Phthisis - Other Tubercular Diseases. 88-91

## Minnesota Vital Statistics - Deaths 1888-91

Comparative Statement of Mortality by Months	Deaths from all causes	1888	1889	1890	1891
	Deaths from Phthisis	1259	1223	1291	1268
	Percent of Phthisis to all causes	8.05	8.4	8.8	8.62
	Deaths from Other Tuber Dis.	151	150	180	197
	Percent. Other Tuber. Dis. to all causes	1.00	1.01	1.24	1.34





## APPENDIX NO. V.

THE NOTIFICATION OF INFECTIOUS DISEASES WITHIN  
A STATE, INTER-STATE, AND FROM THE SEA-  
BOARD TO INTERIOR STATES.

## A SPECIAL REPORT BY THE SECRETARY.

These forms of mutual notification between the guardians of the Public Health, of the presence and character of infectious disease invading or threatening to invade the country, any state, or any town, village or city, have been of very slow growth as methods of every day practice, but with invasion of Cholera last September; the experience of the New York Quarantine; the occurrence of seven recognized cases of the disease in as many different wards of New York city, almost coincident with the arrival of the first suspected ship; and the reappearance of the disease in several places in Europe at the present time, the question of notification in all its forms becomes a subject of commanding importance.

For it is the only reliable foundation of confidence and co-operation between Local Boards of Health and a State Board; between State Boards themselves; between seaboard quarantines and the sanitary authorities of interior States, and between the Boards of Health of the States and similar Boards of Canada and Mexico. Had it not been for the imperfect agreement which existed between some of these authorities before and during the alarm of last September the panic would have been ten-fold worse than it was, and business and social disturbance as much greater. (See Public Health in Minnesota, Vol. VIII, page 79, 1st appendix.)

## INTER-STATE NOTIFICATION OF INFECTIOUS DISEASES OF MEN.

The movement to this end in America began in this wise.

Calling together a number of State Board Representatives, who were attending the Nashville meeting of the Am. Public Health Association in 1879, the Minnesota representative proposed that they organize an Association of State Boards of Health for the purpose of mutual notification of infectious diseases of men, and for concerted action in common work. A committee was appointed to report at the St. Louis meeting but the opposition of gentlemen who feared antagonism to the then National Board of Health and to the Am. Public Association, from such a body, postponed favorable action till the Washington meeting in 1885, when after much and heated discussion the writer was asked to propose a plan and suggested a temporary organization to test the practicability and value of interstate notification of infectious disease, and did so.

In 1886, at the Toronto meeting The Association of State Boards of Health agreed upon mutual notification of Yellow Fever, Cholera, and Small Pox. The following memorandum of all the returns of that kind received by the State Board of Health of Minnesota from 1886 to date will

give an idea of the value of the method. It demonstrates the objection raised by the writer from the beginning of the movement, that only State Boards to whom notification of the same facts by Local Boards of Health was obligatory, could comply with the agreement, but would be dependent upon the associated press as several Secretaries have admitted they were.

**ABSTRACT OF INTER-STATE NOTIFICATION OF INFECTIOUS DISEASES OF MEN FOR 7 YEARS, 1886-1892.**

No. notifications received				Disease		Cases	D'ths	NO OF NOTIFICATIONS BY DIFFERENT STATES, TERRITORIES AND PROVINCES.			
Total	1886	2	Variola	4				Pennsylvania.....	60	Missouri .....	3
"	1887	4	"	4				Illinois.....	20	North Carolina.....	2
"	1888	94	"	624	103			Wisconsin.....	17	New Jersey.....	2
"	1888	1	Typhus fever	1				Michigan.....	16	Colorado .....	1
"	1889	34	Variola	168	17			Connecticut.....	15	Alabama.....	1
"	1889	1	Yellow fever	2	1			Ohio.....	13	Florida.....	1
"	1890	15	Variola	4				Iowa.....	12	Delaware.....	1
"	1890	2	Leprosy	2				Tennessee.....	10	West Virginia.....	1
"	1891	50	Variola	200	31			Maine.....	9	Dakota Ter.....	1
"	1892	43	"	206	81			Kansas.....	6	Province of Quebec.....	20
"	1892	1	Cholera	1	1			Massachusetts.....	6	Province of Ontario. 17	
"	1892	1	Leprosy	1				California.....	5		
"	1892	1	Diphtheria	130	37			Louisiana.....	3		
Total 7 years	249			1347	271			Minnesota .....	8		
Total	243		Variola	1210	232			States .....	22		
"	1		Typhus fever	1				Territory.....	1		
"	1		Yellow fever	2	1			Provinces .....	3		
"	3		Leprosy	3							
"	1		Cholera	1	1						
"	1		Diphtheria	130	37						

**IMMIGRATION AND INFECTIOUS DISEASES.**

For many years Minnesota has received a large influx of immigrants who have made their homes here, but of late, part and perhaps the largest part, of the new-comers have gone through and beyond our borders for location and homes in other States. As one consequence our great cities have become distributing points, not only for our own State, but for States farther on. We have, therefore, in a sanitary sense, two dangers from immigrants—or rather two forms of a common danger—that from those who come to stay with their belongings, and from the same class who go through without interruption, or stop at distributing points for meals, or to change cars with their baggage.

These immigrants come through Canadian or American sea-coast quarantines but as none of them, except that of New Orleans, are under control of State Boards of Health the immigrants were not included in the above notification.

It was soon apparent that Minnesota must have some other and reliable arrangements as to seaboard notification of danger of infectious disease coming to even remote sections of our State by immigrants or their belongings.

**CANADIAN SEA BOARD SERVICE AND NOTIFICATION.**

In 1888 the writer (at the time president of the Am. Pub. Health Association) accepted an invitation to attend a meeting of the Association of Health Officers of the Province of Ontario, and with a prominent member of that body, Dr. Coventry, Medical Officer of Health of Windsor,

visited Montreal and the Provincial Board of Health of Quebec. The writer went to the Grosse Isle quarantine station below Quebec on the St. Lawrence River, and returning went to Ottawa with Dr. Coventry and called upon the Minister of the Dominion in charge of quarantine. He discussed the subject and seemed favorable to the notification asked. Calling attention to the divided responsibility of the St. Lawrence quarantine service with several stations and officers and no medical head, the writer suggested that in that way an immigrant, if his clothing was infected with Small Pox, might easily slip by Grosse Isle and go to the remotest district of Canada or Minnesota before the disease appeared. This was in August. Immediately on my return to Minnesota the following history occurred (making a consecutive record out of one which was gathered piecemeal as events occurred). An immigrant by the Allan S. S. Parisian arrived at Quebec Aug. 24, 1888, at an interior township in Minnesota September 1, 1888, and three days after came down with small-pox, seen by a Health Officer five days after eruption appeared. Nearly 40 people were exposed, but by prompt vaccination and isolation the disease was confined to the two families in which the first cases appeared, seven cases and two deaths. A correspondence ensued. (See Public Health in Minnesota, Vol. VII, page 13, last appendix.)

What we have always needed was a list of immigrant arrivals at the seaboard, coming to Minnesota, with all possible information as to their exposure to infectious disease. To that end a note was sent to Mr. Lowe through Dr. Montezambert, in charge of Canadian Quarantine at Grosse Isle, to which a capital reply was made, stating the additional expense for clerical service, and suggesting the manifest room for improvement in this direction, in our own seaboard quarantine service.

#### AMERICAN SEABOARD SERVICE AND NOTIFICATION.

The most persistent efforts had failed to secure a satisfactory notification of infectious diseases of men from the American sea-board authorities, State or Local, except in an irregular and irresponsible manner if at all. The difficulty seemed to be due largely to their inability to see why they should bother to give information to an interior State Board of Health not asked for by their own.

Our need for this information increased with the increase in the numbers and activity of the Local Boards of Health. (In 1891 within 20 days after the township elections over 80% of Township Boards had notified the Secretary of the State Board of their election—1267 out of a possible 1334.)

An opportunity occurred for a trial in a new direction, by the organization of the Immigration Bureau of the Treasury Department. Though not intended as a sanitary measure the working of this Bureau soon demanded medical assistance largely of a sanitary character. Thinking that the Marine Hospital Service would be probably called to this duty the Secretary wrote to Dr. Hamilton, Sup. Surg. General, April 7, 1891. (See Public Health in Minnesota, Vol. VII, page 15, last appendix.)

No further information from Dr. Hamilton, but in August Dr. Wyman, his successor, enclosed the following copy of a letter on the subject.

TREASURY DEPARTMENT,  
OFFICE OF THE SUPERVISING SURGEON-GENERAL  
MARINE-HOSPITAL SERVICE,  
WASHINGTON, D. C., JUNE 10, 1891.

To the Honorable The Secretary of the Treasury:

Sir:—I have the honor to transmit herewith, a publication known as "Public Health in Minnesota," (April 1891), published by the Board of Health of that State, and respectfully invite your attention to an article on pages 13, 14, and 15, upon "Seaboard Quarantine and the occurrence of infectious disease in Minnesota."

The subject of the importation of small-pox and other diseases into interior States by means of the baggage of immigrants, and the immigrants themselves, arriving at other ports and particularly New York, has been frequently commented upon by State Health Officers, and there is no doubt as to the desirability of furnishing to the States to which the immigrants and their baggage are bound, a list of said persons when they come from vessels which, either on voyage or at time of arrival, have been infected, or when they come from ports where contagious diseases prevail.

A good beginning in this matter could be made by giving this information at least to the one State whose officers have corresponded with the Bureau concerning it, and I have, therefore, respectfully, to recommend that the Superintendent of Immigration at New York be instructed to transmit to the Secretary of the State Board of Health, Red Wing, Minnesota, a list of the immigrants who pass through New York with Minnesota as their destination, whenever these immigrants come from infected or suspected localities, or ships. The Superintendent, or his medical officer, can derive the necessary information regarding *infected localities* from the printed Abstract of Sanitary Reports, which are sent to him weekly by this Bureau, and regarding *infected vessels*, or vessels on which any contagious disease has appeared *en voyage*, from the local quarantine officer, Dr. W. M. Smith, whose boarding station at Clifton, Staten Island, is connected with New York by telegraph.

I have the honor to remain,

Very respectfully yours,  
WALTER WYMAN,  
Supervising Surgeon-General, M. H. S.

#### SEABOARD NOTIFICATION FROM NEW YORK HARBOR.

The Secretary of the Treasury referred this letter to the Immigration Bureau and on June 24th, 1891, the first official notification of infectious disease from seaboard to an interior State in this country went from New York to Minnesota, as follows:

U. S. IMMIGRATION SERVICE, PORT OF NEW YORK, JUNE 24th, 1891.

Report of immigrants landed from vessels, who either on the voyage or at time of arrival have been infected, also those arriving from ports where contagious disease prevails.

Name	Destination	Arrived from Port.	Disease prevailing in Port or Ship.
Caroline Reebe and 6 children.	Buffalo Lake, Minn.	Russia.	Under observation— Small-pox suspected.
W. T. Shreider (wife and child.)	St. Paul Minn.	"	"

JAS. O'BEIRNE,  
Actg Sup't Immigration.

Thus was brought about a very important addition to our means of forestalling the attacks of infections diseases of men, and the first attempt at this kind of assistance to the Board of Health of an interior State by a Department of the national government. It must be understood that the information so furnished was obtained in New York, from the State Quarantine officer, and that a delay in its transmission of, often, 24 hours, was the consequence. It has been impossible to hurry the reports by mail, but we have made an arrangement to telegraph name of

ship, disease and date of arrival in case of small pox or cholera. This was done for cholera suspects in September of 1892.

This notification from New York has gone on steadily since. Up to January 1st, 1893, 136 different lists have been sent from that station covering the names and local destination of 4,269 immigrants registered as coming to Minnesota. The lists indicated that they were going to 1198 different localities in the State, so that that number of notifications have been sent to Local Boards of Health, of which the following are samples of the new forms now used:

Infectious Diseases of Men State Board of Health  
Destination of suspected immigrants. of Minnesota.—7, 11, '92, 1,000  
OFFICE OF SECRETARY AND EXECUTIVE OFFICER.

Red Wing, April 5th, 1892.

F. J. Cressy, M. D., H. O., Granite Falls, Minn.:

The immigrants named below landed at New York April 2, 1892, from S. S. Norge having been exposed to, or having had Measles, and are en route to Granite Falls.

*Do not fail to fill enclosed card and mail, on arrival, or in a week if they do not arrive.*

Yours Truly,

CHARLES N. HEWITT, M. D.,  
Secretary and Executive Officer.

Destination—Granite Falls.

Names—Nels Kittelson, O. W. Forstvedt.

#### SANITARY INSPECTION OF IMMIGRANTS. MINNESOTA STATE BOARD OF HEALTH

The object of this inspection is to prevent the invasion of infectious diseases by the promptest isolation of infected or suspected persons, clothing, and baggage.

\**N. B.—Please fill and return this card as soon as the persons named in accompanying letter arrive, and in a week if they do not. If they have gone to other localities please notify me immediately on another card, and the local board if possible.*

Granite Falls, Minn., April 13, 1892.

DR. HEWITT, SECRETARY STATE BOARD OF HEALTH—

\**One week after the receipt of your list (dated April 5th, 1892,) of immigrants reported to be coming to this place and who landed from S. S. Norge in N. Y. April 2, 1892, I have to report as follows:*

*Of that list 2 arrived. Date of arrival.....1892*

*Well or sick (if sick, what disease). Well.*

Action taken.\* One went to Stoneham Township, whom Chairman reports to be well. The other in the city well.

(Signed) F. J. CRESSY, M. D., H. O.

*\*(Be careful to use this card for them only to whom it relates—a separate one is sent with each list.) Give all the data needful to enable me to account for the persons here referred to and any suggestions which occur to you. If immigrants other than those here reported to you, arrive, look out for them and report any sick; giving date of arrival, date of sickness, kind of sickness, steamship, nationality and others exposed in a separate letter.*

C. N. H.)

#### NOTIFICATION FROM OTHER AMERICAN SEAPORTS ARRANGED FOR.

At the request of the writer instructions were issued Dec. 28, 1891, by the Superintendent of the Immigration Bureau to his agents at all ports where Immigrants are landed, to forward to the State Board of Minnesota the same reports as from New York. Application was made for the same notice from agents of the U. S. Immigration Bureau in Canada as to immigrants bound for Minnesota from Canada and St. Lawrence quarantine, but the reply (June 20, 1891,) was "not able at this time to furnish the information requested," and July 7th it was added in reply to further inquiry "the Bureau has no representative at Quebec, Montreal or Halifax, where steamers debark immigrants, and cannot therefore give you any information on that point."

## APPENDIX NO. VI.

NOTIFICATION OF INFECTIOUS DISEASES OF MEN FROM THE  
SEABOARD, (NEW YORK AND BOSTON) SINCE JUNE 24, 1891.

These immigrants came in 83 steamships—17 in 1891 and 66 in 1892. They were reported as destined to 328 different localities in Minnesota; 27 cities, 173 villages and 118 townships. The table relates only to the work of 1892.

STATISTICAL TABLE MADE FROM THE RECORDS OF THE STATE AND LOCAL BOARDS OF HEALTH AS TO THE DEPARTURE ARRIVAL HEALTH OF IMMIGRANTS FROM SEA-BOARD QUARANTINES.

## PORT OF NEW YORK—1892.

	No. of Reports Received from Sea-ports.	No. of Immigrants Reported.	No. of Destinations in Minn.-ota.	No. Local Bd.s, who have Acknowl-edged Receipt of Notice.	No. of Immigrants so Located	DISPOSAL OF IMMIGRANTS					No. of Immigrants so Notified.
						Arrived Well.	Arrived Well and went to Country	Arrived Well and went out of State.	Arrived Sick and were Cared for.	Have not Arrived.	
Measles.....	85	3375	933	480	1813	626	159	17	13	998	453 1562
Small Pox.....	11	300	97	62	187	91	13	5	....	78	35 113
Diphtheria.....	2	73	30	20	41	15	....	....	3	23	10 32
Scarlatina .....	3	263	42	21	190	62	1	....	....	127	21 73
Meas. and Scarlet..	6	156	44	29	97	43	17	....	....	37	15 59
Meas. & Chick. Pox.	1	10	6	1	2	....	....	....	....	2	5 8
Typhus Fever.....	1	16	5	2	3	2	....	....	....	1	3 13
Typhus and Measles	1	35	12	6	20	4	9	....	....	7	6 15
Cholera.....	5	37	21	10	23	18	1	....	....	4	11 14
Sm. Pox & Measles.	3	4	3	1	1	....	....	....	....	1	2 3
Total, - -	118	4269	1193	632	2377	861	200	22	16	1278	561 1892

## PORT OF BOSTON—1892.

Measles.....	1	20	13	8	14	8	....	1	....	5	5 6
Scarlatina .....	1	49	22	13	30	21	2	....	....	7	9 19
BOSTON .....	2	69	35	21	44	29	2	1	....	12	14 25
NEW YORK.....	118	4269	1193	632	2377	861	200	22	16	1278	561 1892
Grand Total,	120	4338	1228	653	2421	890	202	23	16	1290	575 1917

These statistics are of importance as illustrating the first effort in this country to trace and find immigrants who have been exposed to infectious disease before arrival at two great Eastern seaports; and who were registered at the U. S. Immigration Station at those points, as destined to specified localities in Minnesota.

One hundred and twenty separate lists of such persons were sent to the Secretary. He, in turn, sent out 1228 lists to the Health Officers and Chairman of Township Boards giving names of persons; of steamers in which they arrived at seaboard, of diseases to which exposed, date of departure from quarantine and the destination in Minnesota of 4338 individuals.

Six hundred fifty-three Health Officers, or Chairmen acknowledged receipts of this information with respect to 2421 persons of whom 1290 did not arrive; 1113 arrived well and remained so after observation or left the State; 16 were sick in arrival—13 with measles and 3 with diphtheria—they were isolated and further spread of those diseases prevented. 575 notifications were not acknowledged which related to 1917 individuals, 1563 of these had been exposed to measles and 113 to small-pox.

Inquiry as to why no replies were sent was answered in many instances: "Did not arrive." "Arrived well," "Supposed it necessary to reply only when the immigrants arrived sick." In 1889 no reply was asked for but many came, so that as the Health Officers began to appreciate the advantage to their work, of this means of fore-fending infectious diseases, regular requests for report and postal cards properly prepared for reply with the least trouble; are now regularly sent with all notifications and the number of reports are steadily increasing,

The results speak for themselves and are sufficient encouragement to continue and improve what was at the beginning an experiment. If it had no other effect than to constantly remind Health Officers and Chairmen of the ever-present danger of infectious diseases from *without* the State it would be valuable, but it has been an educating power for the Public Health Service of the State and a preparation for the possibilities of the future, such as could have been gotten in no other way.

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#### APPENDIX NO. VII.

THE MINNESOTA VACCINE STATION, *for the Production of fresh and active calf-lymph, established in December, 1890, under the personal direction of the secretary of the State Board of Health and with its authority, as a part of his official work.*

This department of the work of the Board is the direct outcome of a professional and popular demand for reliable Vaccine. It has been in contemplation for many years and during a visit to Europe in 1890-91 the secretary made a careful study of the methods of cultivating animal vaccine and of its use in every leading Station for its production there. As the result of his studies he selected the calf-lymph produced in the National Vaccine Establishment of Great Britain in London and spent six weeks there in the study of methods of collection, preparation and use. The culture on

calves began in December, 1890, and in May, 1891, the vaccine had assumed so characteristic and permanent a form that its use for human vaccination was regularly begun and has gone on uninterruptedly since. The vaccine was returned to London in 1891, and on trial found pure and vigorous, as the original stock. A rule was established, from the outset of public supply, that the results of its use must be reported on "the day week" so that the producer may keep constant watch of them and be able to know exactly how the product of each calf "works" in the practice of the medical men who use it.

One would think that he could rely upon their co-operation that far, when he provided ruled postal cards for such reports which required but a moment of time to fill; yet the fact remains that 64 per cent of all the physicians to whom Vaccine has been sent (including many supplied gratuitously for trial) have not returned the postal card sent to them. Since about June, 1892, there has been a marked improvement, and at date (Jan. 1, 1893) over 75 per cent report results.

Up to January 1st, 1893, 71 calves have been used for the cultivation of the virus. But one of that number has ever been sick; a diarrhoea some days after removal of the vaccine. Following the invariable rule of the Station the animal was killed and buried. All the rest—70—have been sold for slaughter three weeks after removal of the vaccine. They have been fat and healthy, gaining about one-third in weight while at the Station. It is proper to state that the calves averaged about five weeks old when bought, though of late they are bought when two to three weeks old, as early purchase enables us to regulate their food and care, and often prevent bowel affections so common when they are taken from the mother, particularly in hot weather.

None are bought who are not from healthy mothers and themselves lively and well. They are feed on the milk of our own selected cows, directly after milking and while warm, with every precaution as to cleanliness of vessels and stalls. They do not suffer from the vaccination as much as a healthy baby does, and none lose their appetite or spirits.

Since the Station was established, there has been but one outbreak of small-pox—that in St. Paul in 1891—when the equivalent of over 500 points of virus were supplied to the Commissioner of Health for gratuitous use, *immediately* and 1000 more were available if needed. We keep about that amount in hand all the time, for emergency.

The statistics of the Station are, in part, as follows:

Three milch cows are kept constantly to supply milk for the calves who are fed upon it exclusively till the Vaccine is removed. Seventy-one calves have been used to January 1st, 1893. They are bought as occasion requires, and there is always an extra one for the emergency of a sudden increase in the demand for the virus; usually there are four or five on hand at once. Their average stay at the Station is about six weeks, three before and three after the operation.

The Vaccine is collected, as a rule, 120 hours after the operation, upon sterilized ivory points, which are carefully charged with the virus as it flows from the opened vesicle, carefully dried at 80° F. and packed in parafinc paper. The amount collected from each animal varies, but the average of the 71 used would be about 250 points, and the maximum yield has been 600

points. 15,000 points have been charged; more than half have been distributed, mostly to medical men, and the reported results are of over 3,000 cases. Despite the urgent request to report results within eight days, accompanied by a ruled and addressed postal card for the return, but 36 per cent of the Physicians to whom Vaccine was sent acknowledged its receipt, and but 28 per cent of the results of its use have been recorded at the Station.

This is the average of the records since the work began, but does not represent present reports which, since June, 1892, have averaged more than 75 per cent of all requests made when Vaccine has been sent.

**EXPENSES.**—The total expenses of the Station to date (Jan. 1, 1893), have been \$1,370.88, an average of \$55.00 a month, which includes every expense. The average monthly expenditure since June, 1892, when the Station was brought into Red Wing has been \$35.00, so that an average of \$40.00 a month is a fair estimate of the probable cost of the Station in the future. This means the most economical administration and the gratuitous service of the secretary, who has assumed this additional duty to aid, so far as he may, in restoring the practice of Vaccination to its proper appreciation as our main stay against small-pox.

The medical profession does not realize the share it has had in lowering the popular opinion of Vaccination. The fact is to-day, the popular estimate rules professional conduct in this regard, and it is a common reply of my professional brethren when I urge them to make an effort to protect infants and young children by vaccination, that people will not accept it.

The attached copies of the circular on small-pox, and of the forms used in distributing and accounting for the Vaccine, will enable anyone interested to appreciate the care constantly used in producing it, and the co-operation which well-wishers of the movement for pure Vaccine and its increased use, ought to give—to use it themselves, and for their children, and then to urge its use by other people.

C. N. H.

VACCINE SUPPLY (Letter) 6-6-92-500.

STATE BOARD OF HEALTH OF MINNESOTA.

## MINNESOTA VACCINE STATION.

### FOR THE CULTIVATION AND DISTRIBUTION OF VACCINE.

RED WING, MINN.....189....

To.....

Herewith find ..... points ..... tubes ..... quills,  
charged from Calf No. .... on the ..... day of  
..... 189 .....

N. B.—It must be clearly understood that this virus is.....  
on the following invariable conditions:

I. That a report of its operation be made (on enclosed card) on the day  
week after the use of any of it. If not all used at once other reports to be  
sent as it is used.

*II. That an immediate and full report be sent if there be any irregularity of time or operation of the virus, or if the use be accompanied or followed by any unusual associated affections.*

*These reports are necessary that the undersigned may test the retained sample, or make other inquiry into the case while the trouble exists. In no other way can he watch the production and operation of the vaccine intelligently, and keep it up to the highest standard of purity and efficiency.*

For the present, fresh calf-lymph will be supplied to physicians at the rate of \$1.00 for ten points. Twenty or more points at the rate of \$7.50 for 100 points. Fifty or more points at order at the rate of \$6.00. Any issue will be duplicate if, *when used as directed*, within ten days of receipt, the virus fails to produce one typical vesicle in each case, and the envelope from which the sample was taken be returned. Enough will be sent *once* to any physician who will apply for it, to enable him to test it on the above conditions. All correspondence respecting vaccine should be with the undersigned.

CHARLES N. HEWITT, M. D.  
Secretary.

ST. PAUL, Oct. 8, 1892.  
Have used Vaccine of Calf No. LXVIII, sent Oct. 5, received  
Oct. 6.

The following is a report of result in 2 cases:

No.	Date of use	Primary or re-vaccination	Age	No. inserio's made	No. of successful inserio's	Appearance on "day week" after operation
1	Sept. 30	Prim.	1 y	4	4	Typical
2	"	"	3	4	4	"

In addition used same virus in.....primary cases; successful.....failed.....In addition used same virus in.....re-vaccinated cases; successful.....failed.....

(Note: Please do not fail to make this report, and add here any comments as to action of vaccine.)

WM. DAVIS, M. D.

#### STATE BOARD OF HEALTH OF MINNESOTA.

VACCINE STATION AT RED WING.

CALF VACCINE, 1 points.

CALF NO. LXVIII.

Collected, Sept. 12, 1892.

*Please use as directed:* One end of the point is coated with vaccine. Dip it in tepid (boiled) water, and shake off the drop. Stir up the vaccine with the point of a cambric needle, to a little mass of even mixture. With the same needle-point *four single punctures in the skin about an inch apart : : drawing only enough blood to indicate wound.* Take a little of the vaccine on the needle-point and stab into one wound carefully but thoroughly, then use it in the others in same way. Let wounds dry before replacing clothing.

C. N. HEWITT, M. D., Secretary.

## APPENDIX NO. VIII.

*THE INFECTIOUS DISEASES OF DOMESTIC ANIMALS IN MINNESOTA FOR THE YEARS 1891-92.*

(A Special Report by the Secretary.)

No part of the Public Health duty required of the Chairmen of Township Boards of Health has been performed with more alacrity and vigor than that which relates to the preservation of the health of domestic animals. (Chap. 20.)

The diseases for which the help and advice of the Local and State Boards have been asked since the close of 1890, have been in order of frequency Glanders; Rabies, Tuberculosis in high bred stock; Malignant catarrh of cattle; scab in sheep; loss of cattle by exposure and lack of care, and other questions difficult to classify, but all having in view the possibility of the presence of some infectious disease.

It seems wisest to submit these subjects as they actually come up for consideration in the work of the Health Officers and Chairmen of Local Boards and of the Secretary of the State Board. To that end abstracts of correspondence are herewith given to show its character, methods of work, and some of the results.

**GLANDERS.**—Since the passage of the law (Chapter 200, laws of 1885, see Appendix No I), the disease which has commanded most attention has been Glanders. The following table has been so arranged that it exhibits the distribution and number of counties and localities invaded for each year since the work began, as also the disposition of animals isolated. It will be seen that the number slaughtered has steadily diminished.

The disease was epidemic till 1889, since which time the outbreaks have been more circumscribed and more easily disposed of.

The difficulty is that there has been, and probably is now, a regular trade in glandered or suspected horses or mules from the city to the country, and that some of the cases dealt with every year since 1885, have this origin.

The wholesale invasions of traders from outside the State, with suspicious stock is much more limited than it was, yet so strong is the temptation to get rid of suspected animals, and the impulse to take a "bargain" in a horse trade, that buyers are not lacking who bring their complaints to the Local and State Boards, when, from their own carelessness, all trace of the seller may be lost, or it may prove, as sometimes happens, an effort to save something by a plea for appraisal.

**Appraisal Refused.**—The wisest provision in the law is the refusal of appraisal in cases of Glanders, as much the largest proportion of them are animals bought with a knowledge of their condition; or bought cheap as having only "nasal gleet," or kept in association with other horses after their real condition was known.

It is inexplicable how men will run such risk not only to other animals, but to themselves, and it is constantly done. One result is that the Local Boards are kept in ignorance of the existence of such cases till others beside the owners of the first cases suffer.

There is but one safe rule. Enforce the penalty against owners who expose other animals by careless public use of those which are reasonably suspected. Much danger is caused by public water troughs, feed and livery barns, and common hitching places.

The circular on Glanders which follows this special report describes the disease the methods of its control. It is distributed freely by Local Boards of Health and from this office and if people were guided by it there would be an easier work for the Boards.

The statistical table which follows covers our entire experience, from March, 1885, to January 1, 1893—nearly eight years. The other table shows distribution by counties and localities.

## GENERAL STATISTICS OF GLANDERS, 1885—1892.

*Summary from March 9th, 1885, to December 31st, 1885, 10 Months.*

Counties invaded.....	37
Localities invaded.....	93
Suspected horses isolated .....	284
No. horses killed.....	150
No. animals released .....	126
No. remaining unaccounted for.....	8

*Summary for 1886, January December.*

Counties invaded .....	39
Localities invaded.....	70
Suspected horses isolated .....	139
No. horses killed.....	101
No. animals released .....	36
No. remaining unaccounted for.....	2

*Summary for 1887, January-December.*

Counties invaded.....	43
Localities invaded.....	88
Suspected horses isolated .....	213
No. horses killed.....	129
No. animals released .....	79
No. remaining unaccounted for.....	5

*Summary for 1888, January-December.*

Counties invaded.....	33
Localities invaded.....	68
Suspected horses isolated .....	154
No. horses killed.....	114
No. animals released .....	35
No. remaining unaccounted for.....	5

*Summary for 1889—January-December.*

Counties invaded.....	32
Localities invaded.....	49
Suspected horses isolated .....	98
Horses killed .....	56
Animals released .....	32
No. remaining unaccounted for.....	10

*Summary for 1890—January-December.*

Counties invaded.....	22
Localities invaded.....	33
Suspected horses isolated .....	80
Horses killed .....	66
Horses died .....	2
Animals released .....	6
Horses remaining unaccounted for .....	6

*Summary for 1891—January-December.*

Counties invaded.....	34
Localities invaded.....	60
No. suspected horses isolated .....	137
No. Horses killed.....	66
No. horses died .....	8

No. animals released .....	53
No. remaining unaccounted for.....	10
<i>Summary for 1892—January 1, 1892 to December 1, 1892.</i>	
Counties invaded .....	26
Localities invaded .....	37
No. suspected horses isolated .....	75
Horses killed .....	49
No. of horses died.....	12
No. of animals released.....	3
No. Remaining unaccounted for.....	11

The following are examples of the work done by chairmen of Local Boards:

A. F. Fax, C. B. S. Cannon City Tp., Rice Co., reports, June 2, 1892: "Three horses V. S. pronounced glanders; one has been killed, and Town Board have ordered other two killed. Other horses exposed."

Secretary replied, June 4, 1892: "I send file of circulars, laws, etc. Read carefully and follow. If owner will not admit animals are glandered, get V. S. to examine, and kill if glandered. Town pays V. S., and for killing and burial. Isolate till decided. Report action."

C. B. S. writes, June 8, 1892: "Five horses have been killed; two others isolated by advice of V. S. Horses came from a herd Grant & Co.; had work in on railroad; are distributed in different parts of county."

A. B. T—, Esq., (owner) writes, June 9, 1892: "I have killed three horses with glanders; there are others the same as mine. Send V. S. to investigate."

Secretary replied, June 16, 1892: "I cannot locate your town; read circular I enclose. Will help you if you will give me the name of your town or village."

Mr. Turner writes, June 17: "G— & Co.'s horses are all around here. I don't want to buy horses and have them exposed; please investigate. I am in Cannon City Tp."

Secretary replied, June 19: "Tell your H. O. where glanders are and he will look after them. Send me names outside Faribault, or send to C. B. S."

Secretary wrote to Dr. Jackson, H. O. of Faribault, June 11: "I submit correspondence which seems to indicate a nest of glanders in your vicinity, due to animals sold by G— & Co. Take action as best for getting facts and protecting your horses. This is a common way of distributing glanders."

Dr. Jackson replied, June 13: "Unable to get more information than you have. Know of only one or two of G— & Co.'s horses being sold in town; they have been inspected and will be watched."

A. O. Lunder, C. B. S. Slayton Tp., Murray Co., reports June 16, 1891: "Several cases suspected Glanders, one pronounced so by V. S.; isolated; instruct."

Secretary replied, June 17: "I send file of circulars and laws, which contain instructions; follow them and keep me informed."

C. B. S. reports, June 20: "One horse killed for glanders; three isolated."

Secretary replied, June 23: "Your Board acts under law; V. S. is your adviser. You do as you judge best. Keep me informed."

C. B. S. reports, July 7, 1891: "Have destroyed five glandered horses; five more isolated."

C. B. S. reports, Dec. 3, 1891: "Five horses isolated for suspected glanders; were examined and found well; released."



	1891, 12 Months.					1892, 12 Months.				
	Cases,	Killed.	Died.	Released.	Remaining	Cases,	Killed.	Died	Released,	Remaining
MURRAY Co.										
Cameron Tp.....	3									
Slayton Tp.....	8									
Slayton (v).....	2									
Leeds Tp.....	1									
Iona Tp.....										
Shetek Tp.....										
NOBLES Co.										
Lorain Tp.....	3									
Wilmot Tp.....	2									
OTTERTAIL Co.										
Lida Tp.....	1									
Maine Tp.....										
PIPESTONE Co.										
Fountain Prairie Tp.....	1									
Osborne Tp.....	4									
PELKE Co.										
Gentilly Tp.....	1									
McIntosh (v).....	2									
POPE Co.										
Mora Tp.....	3									
Villard (v).....	1									
Walden Tp.....	2									
RAMSEY Co.										
St. Paul (c).....	34	14		20			6	2		4
White Bear Lake Tp.....							3			3
REDWOOD Co.										
Sheriden Tp.....	4	1	1	2						
Red Lake Falls (v).....	1	1								
Johnsonville Tp.....							5	4		1
Paxton Tp.....							2			2
RENNVILLE Co.										
Beaver Falls (v).....	1		1							
Emmett Tp.....	1	1								
Morton (v).....							1			1
RICE Co.										
Northfield (c).....	3			3			3	3		
Cannon City Tp.....										
ROCK Co.										
Magnolia Tp.....	2	1		1						
Beaver Creek Tp.....							3			3
Martin Tp.....							2	2		
SHERBURNE Co.										
Clear Lake Tp.....							1			1
STEVENS Co.										
Frammas Tp.....	2	2								
Donnelly Tp.....							2			2
ST. LOUIS Co.										
West Duluth (c).....	1	1					1			1
Tower (v).....							1			1
SWIFT Co.										
Appleton (v).....	1			1						
TODD Co.										
Gordan Tp.....	4			4						
WATONWAN Co.										
St. James Tp.....							4	2		
Long Lake Tp.....							5	3		
WILKIN Co.										
Prairie View Tp.....							1	1		
WINONA Co.										
St. Charles (v).....	1			1						
Elba Tp.....	1			1						
WRIGHT Co.										
Buffalo Tp.....							1			1
YELLOW MEDICINE Co.										
Oshkosh Tp.....	3		1	2						

*Minneapolis Summary.*

	1891	1892
No. animal examined on street and barns.....	274	358
No. quarantined animals visited.....	160	190
No. quarantined animals killed.....	46	51
No. barns inspected.....	341	...
No. animals quarantined.....	...	56
No. animals discharged.....	...	5

*St. Paul Summary.*

No. of animals isolated.....	28	6
No. of animals killed.....	8	2
No. of animals discharged.....	18	...

Owing to the fact that the reports for St. Paul and Minneapolis, have not been included, in the summary for the State in previous years they are here given for the years 1891, 1892 separately.

*Rabies confounded with other diseases of the brain.*

The following record is published as an illustration of how easily a form of nervous disease in children, if accidentally associated with the bite of a dog, may occasion suspicion of rabies, and how easily the preserving and watching the suspected dog, would have cleared the record. It is of interest as showing a not uncommon form of popular belief as to what are the symptoms of rabies. No further details though promised, have ever been furnished than are given here. Names and locality are suppressed as not necessary to the record as here used.

Suspected outbreak of rabies in \_\_\_\_\_Tp., \_\_\_\_\_Co., Dr. \_\_\_\_\_, of \_\_\_\_\_, wrote Jan. 15th, 1891 "Boy 8 years old bitten by a bull-pup 3½ months old Nov. 2nd last. Dog not mad but had vicious disposition and had bitten 3 boys before. Inside 15 minutes I had cauterized the wound on lower third of thigh and quite deep with Argenti Nitras. Wound healed in two weeks; in 3½ weeks large bullae formed over healed surface, broke and healed again; in 5½ weeks same occurrence. 4 weeks ago " (about the middle of December) " sister noticed peculiar actions, making peculiar faces talk to himself work hands and arms incessantly and finally would jump on top of his desk, raise his hands and try to climb the side of the wall. Left school yesterday (14th) and I saw him, perfectly tranquil, has laryngeal cough, has bad dreams and whines in his sleep, temperature normal, pulse 104, hearing impaired as he cannot hear watch tick two inches from his ear. Appetite good, bowels constipated, complains of pains in stomach, wound healed. \* \* \* Other children all right, he was bitten through pants, Secretary telegraphed, "Quiet and tonics, get facts of other three and report." Also wrote "Don't alarm them or make anything of this case to patients as it is the surest way to induce the simulated disease. Keep informed. If the offending dog had been spared and carefully cared for and watched all this worry and anxiety would have been saved. January 16th the Doctor reported "Family want damages from owner of dog; boy is tranquil. 1½ years ago bitten on nose by a dog, healed readily and no results. Parents say he falls off chair without provocation and I noticed him biting a piece of cigar box all the time I was at the house. 22nd he again reports tranquil and no signs of bad result at present." 23rd Secretary wrote "Please complete the record of those dog bites of which you reported having seen several. It is very important to get the settled facts." 24th Doctor replied "The dog bite case will all be reported, but I know of none who have had any bad effects to fear." No further report.

Suspected Rabies in Echo Tp. Yellow Medicine, Feb. 28th, 1891; S. Mather, Tp. Clerk reported several dogs bitten by one dog, that have shown symptoms of madness, and asks: "Can Local Board compel owners

to keep dogs tied up?" Secretary replied Yes; enclosing circular on rabies which gives detailed instructions.

March 11th Dr. G. R. Pease of Redwood Falls telegraphed "Telegraph address nearest hospital for Pasteur treatment of Rabies, boy bitten here;" to which Secretary replied "Chicago. If the dog is dead send his head by express. If not report facts." March 12th Dr. Gibson, H. O., Redwood Falls, reported the Echo Tp. outbreak, and that a Mr. Gibbs was in Chicago for treatment by Pasteur method, having been bitten a month ago." Secretary replied: "Dr. Pease has sent head of dog which I shall test. Get all facts."

Dr. Pease, under date March reported: "Unable to get any one to meddle with carcass of dead dog, so had to go to Echo myself and obtain it. \* \* \* It is the head of a dog bitten by the Gibbs dog (the first known to have gone mad.) It became rabid about 8 or 10 days after being bitten. The Gibbs dog became mad latter part of February. It was known to take trips several miles north and south of its home, and to have bitten every dog with which it came in contact—some 15 or 20. A. O. Gibbs, the owner of the dog had two cattle which became rabid later on, and were, no doubt, bitten by the same dog. His boy was bitten by dog, apparently in play, some 48 hours before the animals, which have since become rabid; so that there is a bare possibility that the boy will escape the disease. Mr. Gibbs called my attention to the boy, March 11th for advice. His dog is supposed to have been killed several miles north of Echo, and it is uncertain what became of it. The dogs which have been known to suffer the disease, have shown various sets of symptoms, from the furious to the lethargic. \* \* \* I was at Echo only half hour, and had little opportunity to get accurate knowledge. Some of bitten dogs still at large. What legal measures should be adopted to protect public? To which Secretary replied: "Statement does not prove rabies; but justifies all reasonable precautions, which I have suggested to the Local Board."

March 17th. Letter from Mr. Mather: "By request send head of dog bitten by a rabid dog and died very rabid. Please report." Secretary replied: "Two heads of dogs at hand and have inoculated rabbits from each. Report further, and forward heads of animals dying of what seems rabies."

March 21st, Th. Barber, Chairman of Echo Tp., replied: "Dog of Mr. Gibbs came to Echo village last of January, and was taken home in afternoon of same day, though not confined, and he bit some of Gibbs' stock. At least 1 cow, 1 steer, and 1 sheep have died or been killed, with strong symptoms of rabies; especially the cow and sheep. The cow was confined by being tied to a post where she bellowed, jumped and frothed at the mouth. The sheep, before it was killed would snap at anything thrust forward at it same as a dog. The dog sent by Dr. Pease and the one sent by me were both bitten by Gibbs' dog. All dogs but three bitten by Gibbs' dog are killed. The dog sent by Dr. Pease had symptoms of rabies 8 days after bitten, he was paralysed and lived 3 days. The other dog belonging to a brother of Mr. Gibbs, and seemed all right at night and was dead in the morning. Mr. Gibbs' dog bit one of his boys 2 or 3 days before he went to Echo; and also Mr. Gibbs while working around his cows, already noted: got some froth on a sore on his hand. \* \* \* All dogs ordered chained up."

March 27th. On request, Dr. Lagorio, of Chicago Pasteur Institute, reported: "Gibbs and son doing well." March 31st., Dr. Pease reports another cow of Gibbs becoming rabid last Monday was shot. Gibbs, before reaching Chicago, showed severe symptom of rabies, at one time not expected to live. Both father and son now well and coming home." To which Secretary replied April 1st:—"If Gibbs had symptoms of rabies on leaving home, or after treatment be-

gan, the Pasteur or any other method could not save him. It is now two weeks since I inoculated the rabbits, and they are well; a few days more will clear the record." They remained well after 3 weeks had passed. *The suspected dogs did not have rabies.* The parties bitten remain well to date of last report.

It will be observed that this outbreak was well over before it was investigated, and that two rabbits inoculated by Pasteur's method (Intra-cranial injection of emulsion of the medulla of suspected dog's brain, failed to respond: showing that the brains used did not contain the infection of rabies, and that the cause of death is not proven. It is evident that if the first dog had been locked up on returning from the village, most of the deaths and losses might have been saved, to leave out of note the worry and expense of Mr. Gibbs, and his trip to Chicago.

*Suspected rabies at Elysian Village.* Le Sueur Co., March 2, 1891. Dr. Reynolds, H. O., writes "There has been in this village a rabid dog; the dog has been destroyed, but he had bitten a number other dogs and hogs and cattle in the town, and hereabout. Send instructions at once." Secretary replied referring to an article in July number of PUBLIC HEALTH IN MINNESOTA I will believe the claim when it is proved that a given dog was rabid. People destroy the best evidence when they kill suspected animal. \* \* \* Have yet to find the first proven case in the state, though a probable instance has occurred. If any suspected animal die send its brain, put into pure glycerine, to me."

No further complaint nor any reply to this letter.

*Suspected rabies. The duty of the Local Board of Health.* Prompt and proper action by a Township Board. March 21st, 1891. F. Robson Chairman Wood Lake Tp., Yellow Medicine Co., writes, "It is generally reported and believed that mad dogs are running at large in this section of country. What is the duty and power of the Local Board? Answer return mail." 23rd Secretary answered, "Publish notices in the usual way that dogs found on highway unmuzzled will be isolated or killed by the local Board as it finds best. Read article in PUBLIC HEALTH and report action." 25th Chairman replied, "Have this day ordered that all dogs in this township be either muzzled or confined at home by owners for 21 days. If found unmuzzled on public highway will be shot." 30th Secretary replied, "Publish order as required by law, see enclosed printed matter." No further report.

*How to investigate cases of suspected rabies in domestic animals.* E. J. Sargent, Tp. Clerk, Sargent Tp. Mower Co., writes, "April 4, 1891. A neighbor asks me to write you. Last winter lost three hogs, a yearling heifer and one cow from hydrophobia, the last creature dying a day or two ago. Was a strange dog at his place some 2 months ago that he, afterwards supposed to be mad. He asks how to find out just what the disease is and who is to look into the matter. Answer by return mail if possible." April 5th Secretary replied, "See article on rabies sent to you. Send me, express paid, head of suspected animal and I will test the matter, send full history." No reply.

*Suspected rabies at Chatfield.* May 29th 1891 Dr. Stephens, H. O., writes, "This morning, and before, considerable of a mad-dog scare in this vicinity. Have requested city officers to order all dogs muzzled and all dogs in fits or frothing at mouth, or snapping to be shot. Please instruct." 30th Secretary replied, "Read enclosed circular. Care for suspected animals till dead." No reply till June 10th, seeing newspaper reports of rabies there. Secretary wrote for particulars, to which Health Officer replied: "Sent head yesterday; could not prepare it myself, so another did it for me.

Dog died in great agony. 32 dogs killed to date." Under date June 19th he continues: "H. S. Marchand, living about 5 m. s. e. of here, Chatfield Tp., says. May 17th my dog acted a little cross, took after cat, killed it, got after another cat, bit it (killed cat afterwards). That night dog left place and has not returned. Saw him bite nothing else and did not think of his being mad. 15th June noticed mare showing symptoms of biting her own colt, which was her working mate, on chasing him into the river, did not follow him, same day put her in stable and sent for V. S. Gave medicine, no good, she bit, struck, and was violent (thong very gentle when well) and died in 24 hours. Had not thought of rabies. Turned out a cow, she chased chickens bellowed &c., tearing around pasture, did not want to go with other cattle, acted mad, When fastened in stanchion knocked off her horn, and died in 24 hours. In another week another horse was taken similarly. V. S. said it was rabies; treatment useless, died in 36 hours. Others act just the same, wont eat or drink. Shot and buried one, two others now the same. Please advise or come." Sec'y replied, June 22nd, "Isolate all suspected animals, each sort alone. If another dies send brain as directed."

June 10th. J. W. Russell, J. P., Chatfield, writes "I send by express head of dog as suggested by Dr. Stevens. Dog closely confined for 23 days, and died at 8 O'clock this morning. 20 dogs killed since yesterday by officials. The head will be sent in the morning." Sec'y replied same date: "Stevens has full instructions."

*Authority to Muzzle Suspected Dogs.* June 9, 1891, Dr. Robbins of Wykoff, H. O. of village Board of Health and of Tp. Board of Fillmore Tp. wrote for instructions as against Rabies, by muzzle. Sec'y answered on 10th: "See enclosed paper on rabies. Local ordinance sufficient, consult Co. Attorney as to form. 25th H. O. sent copy of local ordinance which other towns have asked for."

Secretary replied "Send head of a suspected dog if you have any. Have failed to get any evidence from what have been sent me, of rabies, which if animals died of rabies I should not fail to find. Keep suspected dogs alive to watch for evidence."

June 28th. H. Balcom, Chairman Jordan Tp Fillmore Co., wrote from Chatfield: "Rabies reported in adjoining towns we have ordered dogs to be kept tied up till further notice. Think all towns have taken action except Sumner, where were several cases of the disease; but though notified, no action taken. No cases in our town. What further action advised?" Sec'y replied: "Will attend to Sumner. Carry out instructions sent."

July 1st Secretary writes to Jas. Strain, Chairman of Board of Health Sumner Tp., Fillmore Co.: "Rabies reported in your Tp. Please take proper action (detailed instructions as above) and report." Chairman replied: "No rabies here, have heard it was in the vicinity of Chatfield, cannot vouch for it."

June 27th, Jos. Underleak, Clerk, Chatfield Tp. reported: "Mad dogs roaming through this part of country for some time and a number of cattle have been bitten and had to be killed. Instruct." Secretary replied next day:- "Do you read PUBLIC HEALTH?" And gave full instructions.

No further report or notice till June 13th, a package without note or description, front St. Charles, express unpaid. The next day a letter from L. D. Eckles, D. V. S., stating that he had sent the head of a cow which died in Elmira Tp. of supposed Rabies. He saw her an hour before death. Secretary declined to examine without request from local board of health to the Chairman of which the Secretary wrote and who replied through the Clerk that as chairman he had nothing to do with the matter. The examination of the head went no further than to examine brain and frontal sinuses which had the appearance which ac-

companies the affection known as Malignant Catarrh of cattle. Made no inoculation, and no report.

Foster Tp., Faribault Co., May 30, 1891, F.F. Schow, Chairman, reports. "Citizens report a number of dogs gone mad in this and adjoining towns and bitten a number of cattle and hogs which have died with all the symptoms of hydrophobia." Secretary called attention to instructions already issued to Local Boards, and asked for names of other Townships affected. No reply.

Aug. 10th, 1891, Pleasant Grove, Olmsted Co., Geo. Logan Chairman reports. "We are 10 miles west of Chatfield. Saturday 8th, Mrs. N—— went out to feed her dog which had acted strangely lately, he came out at her, throwing her down, when two men came to her help and killed him. Two marks with slight show of blood. All excited. What to do with other dogs?" Was to send head of dog but the Secretary was absent abroad and a rabies circular with full instructions was sent. Aug. 24th the Chairman acknowledged receipt of circulars and wrote, "There is no more trouble and I do not think that dog had rabies or anything like it."

So much for the record of 1891 in which there was no positive evidence of rabies nor was there a suspected case among men except the child of which there is not the least evidence.

January 27th, 1892, Dr. F. H. Spaulding, H. O. Evansville, Douglas Co., writes; "Want information at once. A strange dog came into village on Sunday 29th, and after running about town half a day, or whereabouts, and engaging in several battles with various dogs both offensive and defensive, the cry of "mad dog" was started by some boys and young men of the place, and the strange dog was pursued and shot. On the same day six owners of dogs bitten by, or seen fighting with the dog, killed their own dogs for fear of hydrophobia, and it is now proposed to have owners of dogs who were in the same danger kill them. Don't think the dog had symptoms of rabies. Can the village council or officers as Board of Health compel such killing, and if so, how? Secretary telegraphed, "Local boards isolate, in care of owners, all dogs suspected to have rabies."

March 12th, 1892, Mr. T. Lahart, Chairman of Eureka Tp., Dakota Co. reported. "A number of dogs said to be going mad in our town. I think some action should be taken. Please direct. Am told several dogs have been killed and some cows. Will keep you informed." 14th. Secretary wrote "Read enclosed circulars on Rabies, learn how rare true Rabies is and be able to test the matter when in doubt. Distribute circulars and have every member of your Board read one, so as to be able to act intelligently and without panic on any question of the kind which may suddenly arise."

March 16th, Dr. Dodge, H. O., of Farmington, writes by request and reports a child bitten a week before the cattle went mad. "Would it not be well to come up?" Secretary replied. Probably a form of malignant catarrh and not infectious. Why don't party call a V. S.? and get written opinion. The local Board should isolate and watch all suspected stock and report action. Many of these suspected Rabies outbreaks are nervous irritations due to improper feeding and neglect." No further report."

May 7, 1892, Dr. J. C. Fitch, H. O., of Hastings reports: We have had a "mad dog scare" but the police killed the principal dog and all others known to have been bitten, so that I had no opportunity to confine the suspected one to watch developments. I saw him shake a little pet dog unmercifully but had no idea that there was anything unusual. Secretary replied. The rabid mania is a curious popular frenzy which I have yet to see proven to be well founded. Dr. Fitch's experience

would have been different, if persons had been bitten and every means of identification as thoroughly destroyed.

The following record is instructive and shows the metal of which many of our Chairman of Tp. Bd's are made. May 19, 1892, the secretary saw a report in a daily paper of a supposed case of rabies in a steer, in in Homer Tp., Winona Co., and wrote to the Chairman, Mr. C. W. Merritt, sending Rabies circulars and asking for information, to which the chairman replied: "I have not seen the party referred to, but understand from good authority, that the steer was suffering from indigestion, the second stomach being filled with dry food—dry murrain I should call it. The same kind of a case that a V. S. from Winona was sent to Houston Co. for a year or so since." Secretary replied: "Am glad that you have the right view of these cases of cattle who have been neglected, and for whose suffering it is easier to blame a wandering dog than to put it on the owner, where, in such a case as this, it usually belongs. It is always well to make examination of the body of the dead before crying 'mad dog.'"

May 25th, Dr. Leonard, Minneapolis, of the State Board of Health had reason to suspect rabies to be in Willmar and wrote Secretary who telegraphed Dr. Rains, H. O. Willmar. Dr. Rains telegraphed May 27th. "Suspected case rabies here 7 weeks ago and another from Raymond Tp. 12 miles from here. Will write tonight."

Dr. Rains letter discloses the only satisfactory and sensible action by a Local Health officer, in presence of suspected rabies which our record bears. He writes: "About 7 weeks ago, a dog belonging to A—O—was reported to have run a muck through the village and bitten several dogs. At that time I advised the owners of all the bitten dogs, to tie them up for a couple of weeks, and see what would develope in that time. They did so, and all being in good health were released. The A—O—dog disappeared and has not been seen since. Dead body of a dog found near lake 3 weeks after; generally thought to be the O—dog. A dog bitten by this O—dog owned by Mr. Mc K—remained healthy till some five weeks ago when after being out hunting with his master twice, he became sick. Owner says he had spasms, trouble in head with muco-purulent discharge from his mouth; he chloroformed and buried him. No other bitten dogs sick. Rumors of other dogs in Raymond Tp. Any suggestions?" Secretary replied: "Nothing stirs people more than suspicion that they or some one in whom they are interested has been bitten by a mad dog. Suspect your cases to be distemper but not rabies. Please keep me posted as to locality in which suspected cases are. Dr. Rains sent the head of a dog shot on the street having no owner and not known to have bitten any person or other animal, but the history did not justify the use of inoculation, nor has there been any subsequent trouble."

*Rabies suspected in Louriston, Chippewa Co.* July 21, '92, Martin Glynn reported, "Last February a mad dog went through here and bit some dogs and cattle. The bitten dog got mad and bit other cattle. The owners of cattle were not aware of the trouble till their dogs died. Cattle began to die in June and one young man thinking his cow had lost her cud gave her a piece of pork. He had a sore on his hand and in 3 months he got mad and died.

Another farmer near by lost 7 head, one a milch cow whose milk they used till she took sick and died. Any danger to have used the milk or butter? 40 or 50 persons affected if milk is dangerous. Write or come." July 24th Secretary replied enclosing circular on rabies. "No danger in milk or butter. Furnish a careful description of affected cases." Have written Chairman.

July 23rd, Chairman Armstrong, of Louriston, wrote, reporting the young man's case as above, adding that the cow was foaming at the mouth. Next day they killed the cow; this was about 3 months ago. Other

cattle were sick and died showing same symptoms. Dog bit another young man, but no wound. Is he in danger? The sick man scratched one who was holding him, on face and hands. Dr. Andrews, of Benson, was there; burned the wounds, and said there was no danger. Any danger to other dogs in being around where mad dogs have been? "24th Secretary replied "You had the circulars and information sent to you in "*Public Health*," which if you had read would have enabled you to deal with this matter. As it is, I am not at all satisfied what the disease is. Better call a V. S. to examine cases. Distribute circulars on Rabies which I send." No further report. In August the case was reported by the Tp. Clerk as dead of Rabies and Secretary wrote for full details of the attending Physician, who replied, Aug. 17th. "In April a mad dog came to this place and bit three dogs. In a few days this dog was taken sick (they did not know what was the matter) and bit a pig and cow; the pig died soon after, and the cow was also taken sick some time after. Not knowing what ailed her, this young man trying to treat her put his whole hand (on the back of which were a couple of small scratches) into her mouth on which his sister noticed blood when he withdrew it. They paid no attention to it and wounds got well, without trouble. He had no symptoms at all till 3 days before he died, July 16th, 1892, and they were only severe and characteristic about 12 hours before death, and there were pains in chest and throat and as he expressed it, the blood rushing to his head; spit froth constantly and wanted to bite everybody; he bit the bed clothes and his own fingers till he drew blood. His eyes had such a very peculiar and wild appearance that I will never forget, and would almost feel safe in diagnosing a case from that alone. \* \* \* He knew everybody around him, and what he was doing but said he could not control himself, asking to be strapped to the bed to prevent him injuring others. When well, he was a quiet and peaceable man, but now he was very rough and said he could not understand why. I thought of writing you about it but did not know just how this would be classified."

Secretary replied, "Exact dates wanted. I cannot get them of animals bitten and dates of bites. Vulgar language or biting himself or others (in man) particularly when he knows what he is about is no evidence. The chest symptoms and spasms of throat are better proof, but I can explain them all, if the symptoms of the disease (or rather *supposed* symptoms), had been talked over to him and a terrible fear overtook him. If I had known of the case, would have course come up. After death we might have inoculated lower animals with matter from the lower brain and tested the truth of the diagnosis. Get facts as to animals. When was the man exposed; exact date? How long after exposure were first symptoms? Describe symptoms throughout each day till death. Should be obliged if you would collect these facts as you have time and opportunity. You will find it very difficult to get exact truth as people are very apt to let their notions of *what ought to be* stand for *what was.*" No reply.

# GLANDERS.

An Abstract of the Latest Information as to its Causes,  
Prevention and Control.

Statistics of the Disease in Minnesota from March 1, 1885, to October 1, 1892.

DATE.	Animals Isolated.	Animals Killed.	Animals Released.	Localities Invaded.	Counties Invaded.
March 1, 1885, to October 1, 1885.....	231	132	99	76	31
October 1, 1885, to October 1, 1886.....	251	193	58	63	34
October 1, 1886, to October 1, 1887.....	185	118	67	78	39
October 1, 1887, to October 1, 1888.....	248	194	54	81	40
October 1, 1888, to October 1, 1889.....	102	57	45	59	36
October 1, 1889, to October 1, 1890.....	82	67	15	40	24
October 1, 1890, to October 1, 1891.....	132	72	49	53	28
October 1, 1891, to October 1, 1892.....	81	43	19	34	22
	1312	876	406		

1. *Glanders and Farcy are the same disease, differing only in location.* The common cause of both is a peculiar poison associated with a specific microscopic plant shaped like a little rod and so called a bacillus. During the seven years which have passed since the control of diseases of domestic animals became the duty of the State and Local Boards of Health the affection of the nose, and glands under the jaw, popularly classed together as "Glanders," has been the most common variety of the disease, "Farcy" comes next, and cough and disease of the lungs the last. All forms have been chronic in the great majority of cases, the last the most insidious and dangerous of all.

2. *The fact that the common cause of these apparently different affections operates in so various ways makes the obscure forms of Glanders difficult, even for an experienced Veterinary Surgeon, to discover.* This fact is constantly used by unprincipled dealers to explain any suspicious symptoms in horses they offer for sale, and the common use of such terms as "Catarrh," "Nasal Gleet," "only a little cold," "epizootic," and the like should arouse suspicion, and provoke very careful inquiry.

3. *In any form Glanders is an infectious disease, communicable to some other animals and to man.* Several cases of the last have been recognized in Minnesota, and others have doubtless occurred which passed as "blood poisoning" from unknown cause. The infection is transmitted by direct contact; by means of infected things; and, possibly, by dust in the air. It is, for practical purposes, an incurable disease. It occurs, most frequently, in the crowded quarters of livery, street-railway, and

contractors' barns, if not kept in first rate sanitary condition. A large proportion of the cases of Glanders reported and dealt with by the Local Boards of Health have been bought of traveling horse traders, without warranty, and often without knowing even the name of the seller, so that it has sometimes been difficult for Boards of Health to trace the fraud for lack of definite data. Farmers, teamsters and draymen cannot be too careful in asking the name and responsibility of the seller of such animals, and should insist on a thorough trial before purchase. A sharp bit of work after the operation of a brisk physic, will frequently develop symptoms not before apparent; as it is difficult to keep a glandered horse in "condition" when at work, or to conceal the disease.

#### HOW ARE LOCAL BOARDS OF HEALTH TO DEAL WITH ANIMALS REPORTED TO BE GLANDERED?

4. When possible call a Veterinary Surgeon to be "by them selected," that is, one in whom the Board have confidence and would trust with their own stock. Have him examine the suspected animal and fill Form 2, of the blanks for the purpose, furnished from this office, complying with all the requirements of the blank. The Board will be guided by his written advice, so given, and will serve a copy of the certificate on the Secretary of the State Board, with report of their action.

5. If the certificate reports the case doubtful, the Board will serve Form 1 of the same series of blanks upon the owner or care-taker after filling it properly. Animals isolated after exposure to Glanders, or because they are suspected of having the disease, are left in the care and at the expense of the owner, because they are often fully able to work, and, until the disease is fully recognized, may be permitted to do so on the farm of the owner, provided he contract that the animal shall expose no one but his mate, and that neither shall leave the farm or associate with other animals till the isolation is removed by the Board who ordered it. The owner uses such animals at his own risk and assumes the responsibility or danger of infection, to others, from them.

*As soon as the fact of the existence of Glanders is established by the certificate of the Veterinary Surgeon selected by the Board as above, the Board issue the order for slaughter on Form No. 3, which is also for disinfection, and insist on its immediate execution. No appraisal is to be made of glandered animals, nor any compensation allowed except "to the owner, an equitable sum for the killing and burial."*

6. BUT SUPPOSE (AS IS SOMETIMES THE CASE IN COUNTRY DISTRICTS) THAT A RELIABLE VETERINARY SURGEON IS NOT AVAILABLE, WHAT IS A LOCAL BOARD TO DO? Isolate all animals reasonably suspected of the disease, or of having been exposed to it till such time as a competent adviser can be gotten and report to the Secretary of the State Board. In most well marked cases of Glanders, in any of its forms, the evidence is so clear that no one familiar with horses can be deceived after a careful examination and trial, as above suggested, and it is not uncommon for owners to ask to have such animals condemned.

7. Remember that the forms most common among work horses are chronic, slow in progress, and that the essential symptoms are local. IN

GLANDERS THEY ARE DISCHARGE FROM THE NOSE, WITH INFLAMMATION, THICKENING AND OFTEN ULCERATION OF ITS LINING MEMBRANE, WITH A HARD SWELLING OF THE GLAND UNDER THE LOWER JAW. At first the discharge is glutinous, adhering to the skin and hair around the nostrils, forming soft greasy-feeling crusts of a deep brown color. Later the discharge becomes pus (matter) of a slightly greenish tint which many think very characteristic.

8. *Farey rarely attacks young, well-bred and well-fed horses, or the mule.* Its victims are usually the common-bred, or worn-out and old horses. It is an affection of the glands, and is preceded by some fever and constitutional disturbance. The local affection consists of lumps (enlarged glands) just under the skin where it is thinnest and most sensitive, on the face, the neck, but most commonly inside the limbs. These lumps are often connected by the swollen lymphatic "cords," as they are commonly called, while the swellings are named "Farey buds." Like the nasal swellings, these "buds" burst and become jagged sores, with raised edges and hard bases, slow to heal, disposed to get bigger, and often with yellowish crusts. When well marked there can be no difficulty in recognizing this variety of the disease.

9. *The acute forms of any variety begin with sharp symptoms, go on rapidly to characteristic evidence, and they are usually fatal speedily, (eight to ten days).* The chronic forms are often very tedious, lasting for many months. These are the forms which occasionally "seem to get well." Common experience shows that recovery is not proven nor to be relied on, as it frequently happens that animals apparently well give the disease to others, and much valuable stock has been lost in this way.

10. HOW TO PREVENT THE SPREAD OF GLANDERS. First. *Boards should induce representative horse owners to unite with them in careful oversight of suspicious animals and horse traders.* These last are too often the means of introducing the disease and therefore need watching as do all sale, feed and livery stables, and particularly herds of horses coming in for sale or trade.

Second. *To isolate animals who, in the opinion of the Local Board, are reasonably suspected of having the disease, or to have been exposed to it, till competent advice can be had, or sufficient time allowed for the owner to call counsel, or for the disease to show itself.* Such isolation should be at the risk and expense of the owner, and with full security for other stock.

11. HOW IS GLANDERS, IN EVERY FORM, CONVEYED? The infection is in the discharges from affected animals. If conveyed in the air it is in the form of dust. The most probable method is by direct contact of the sick with the well, or by the means of buckets, water troughs, blankets, bridles, anything in fact, which can collect, carry or preserve the discharges from the sores. The affection of the lungs is doubly dangerous because usually unsuspected.

12. HOW TO DIMINISH THE DANGER OF SUSPECTED CASES, AND TO DISINFECT THINGS AND PLACES AFTER THE KNOWN PRESENCE OF THE DISEASE. The virus is easily destroyed by dryness, free air, and sun-

light. It may be preserved for many days by moisture, darkness, and in water. Boiling water very soon, and hot water (above 160° F.) in a few minutes, are fatal to it. With hot water, therefore, all harness, bits, blankets and other covers, may be surely disinfected. Straw and anything else used as bedding should be burned. Stables and stalls should be washed down with fresh and hot quick-lime as whitewash. Use a broom and apply the wash freely. Sprinkle the floors with fresh lime in powder, freely. After a few days whitewash again, sweep clean, burn the rubbish and the barn is safe. *But do not forget that thoroughness is essential to the success of disinfection.* Warn all concerned not to handle glandered or suspected horses without great caution, and require all suspicious cases to be isolated till the real disease is known.

See the backs of the forms in use for dealing with Glanders for other details.

13. *The law for dealing with Glanders is Chapter 200, Laws 1885, (See "FULL FILE" sent to every Board of Health and to be kept for reference.)* Section 1, makes it the duty of Boards of Health to isolate all animals having infectious diseases, or which have been exposed to infection. If left in the care of their owners, as is done for animals suspected of Glanders, it is at their risk and expense, and mostly for two reasons: First. That if able they may work without danger to other animals. Second. That the owner may have the benefit of the doubt, and that steady hard work will most surely and quickly develop the disease, if it exist.

14. The selection and pay of the Veterinary Surgeon is left to the Local Board of Health by Section 2 of the Law.

15. NO APPRAISEMENT IS PERMITTED FOR A GLANDERED ANIMAL, AND NO COMPENSATION except "an equitable sum (the custom is \$3.00 to \$5.00 for each animal commonly, but that is regulated by the Local Board, who pay for it).

16. It is the duty of all Local Boards of Health to keep the Secretary promptly informed of the existence of this, or any other infectious disease, so that the State Board may give any assistance in its power, and protect other localities from infection.

17. This circular will be distributed freely by Health Officers, Chairmen, and any other members of Boards of Health. It and all other information on the subject may be obtained directly by a postal card, addressed to

C. N. HEWITT, M. D.,  
Secretary State Board of Health,  
Red Wing, Minn.

October 1, 1892.

## APPENDIX NO. IX.

*THE IMMIGRANT INSPECTION SERVICE AGAINST CHOLERA.  
SEPTEMBER, 1892.*

At a special meeting of the State Board of Health called at the request of the Governor, and held at the capitol, September 5 and 6 1892 it was ordered that Medical Inspectors be appointed for the examination of immigrants at the cities of Duluth, St. Paul, Minneapolis and Winona. A committee consisting of Drs. Millard, Leonard and Hewitt appointed to adopt rules for such inspection adopted those prepared by the Secretary. On nomination by members the following gentleman were appointed Inspectors at the will of the Board with compensation of \$10.00 per diem inclusive.

Dr. C. F. McComb and Dr. E. N. McGiffert to inspect lake and railroad transportation at Duluth.

Dr. Fred Hilbert to inspect trains at St. Paul Dr. F. B. Samson at Minneapolis, and Dr. J. S. Tracy at Winona.

The railroads were represented at the meeting by their managers and agreed to the suggestions of the Board promising to give hearty co-operation as suggested in the letter of the Secretary addressed to each September 2, and to support the Board in its demands as to sea-coast and inter-state rules. (See page 55, Vol. VIII, PUBLIC HEALTH IN MINNESOTA, last appendix.)

The following instructions were issued to the inspectors:

Secretary's Office, Red Wing, Sept. 5, 1892.

**DOCTOR--**The duty of an inspector of this Board, under the vote of September 6, is to use all methods available for the detection and prevention of the importation of cholera or other infectious disease into this State, in the person, clothing, baggage of passengers upon railways, steamships, or other means of transportation.

As respects immigrants coming from a seaport the inspector will require satisfactory evidence.

1. Of the ship upon which he came, of the port, and date of landing; and any facts he may be able to give as to the presence, or absence of infectious diseases upon such ship, or in quarantine.

2. That the immigrant, his clothing, and baggage have passed inspection in said quarantine, and are free from infectious disease.

3. That he shall be properly vaccinated. Ten points of vaccine are enclosed herewith for use upon immigrants when necessary; telegraph for any more needed. As immigrants are usually vaccinated and re-vaccinated before arrival here, it is not likely that much vaccine will be needed.

4. Of his local destination in Minnesota, or what route he will take if going through the State.

5. That he is well, showing no evidence of infectious disease.

For the first two items the most reliable evidence will be the certificate of the quarantine officer, next that of the Immigration Commissioner at the quarantine port; next a certificate of any State inspection en-route, and last such evidence as the inspector can obtain in other ways as respects the immigrant. As to the fourth his railway ticket and personal statement will decide, and as to the fifth a careful examination.

In any case where you are not satisfied, the question to be answered is, Is there any danger of importation of infectious disease from the history and appearance of the person in question, to justify his detention, or may he be permitted to go to his destination within, or through the State, without danger to others?

Of course in case of actual small-pox or cholera, you will insist that the train be stopped outside the State border, and not permitted to pass over until the patients and all persons and things which have, in your opinion, been exposed to infection have been taken out. In case any serious delay is necessary the engine, mail, and other cars and their contents, than the one or more infected, should be permitted to come on. In such cases always have in view the least possible delay of travel and traffic, consistent with safety.

Report immediately, any danger of this sort by telegram to the Secretary

in such detail as you may think to be necessary; the railroad officials will furnish you every facility to that end. Fuller details as to the dealing with actual diseases will be sent you as soon as the opinion of the Attorney General has been received by this Board.

Inspector will insist on good ventilation and reasonable cleanliness of all immigrant cars, and will be particularly careful in the inspection of closets and urinals, and of the floors thereof, insisting upon thorough and repeated disinfection of all.

The same rules should be used in inspecting stations and rooms occupied by immigrants there, with the closets and urinal attached thereto. No "holes in the ground" should be tolerated; above ground receptacles good as the one in "circular on earth closets" of this Board (see appendix No. III of this report for that circular) should be insisted on. Where water closets are in use they should be required to be kept clean and odorless, and frequently flushed with disinfection solution.

Sulphate of Iron in the proportion of a pound to a gallon of water, in a large stoneware jug or other convenient container must be kept in such closets constantly, and used as required.

Please keep a memorandum of the names and local destination of all immigrants coming here, and forward copies of the same, by first mail, to the secretary, so that he may warn Local Boards of their coming, and make preparation for their reception.

In case of those suspected of exposure to cholera or small-pox telegraph names and destinations; in ordinary cases first mail will do. Inspectors will inform Local Boards of Health of distributing points where they are located of all facts of sanitary importance, and co-operate with them in every way in their power. They will send the report of inspection made, number of immigrants, examined, their destination in the State, and their sanitary condition daily, to the Secretary. These reports may be as brief as you please provided they give the essential facts. Blanks for this purpose are being prepared and any suggestions your experience may furnish will be welcome. Telegraph for instructions when in serious doubt.

By order of the Board.

CHARLES N. HEWITT, M. D.,

Secretary and Executive Officer.

The Secretary had under date September 7, 1892 sent specific instructions to executive officers and members of Local Boards of Health and copies of the same to mayors of cities, presidents of villages and boards of supervisors of township, with appeal for their co-operation (see copies on page 57-60 Vol. VIII of PUBLIC HEALTH IN MINNESOTA, last appendix.)

At the meeting of September 6 the Attorney General was asked an answer to the following questions submitted same date. His reply, which includes the question asked, was as follows:

"1. What rules and regulations may the State Board of Health adopt and enforce with a view to the protection of the State against infectious diseases in the person, clothing, or baggage of immigrants or other passengers coming into the State, who are known, or reasonably suspected, to have been exposed to infectious diseases, or as to persons who are suffering therefrom.

2. Can this Board require that the railroad companies or other corporations and individuals engaged in the transportation of persons, provide for the disposition of the sick or suspected persons, or of suspected baggage, in accordance with the rules and regulations adopted by said Board for the purpose of preventing the introduction or spread of infectious disease into the State? This, too, includes the provision for their isolation, habitation, and care till all danger of infectious disease to the citizens of this State from their persons, clothing or baggage shall have been prevented.

3. If such companies or individuals shall import into this State, in violation of the rules and regulations so adopted, persons, clothing or baggage infected, or suspected to be infected, by contagious or infectious disease, can

they be required to make provision for the isolation and care of such persons and baggage so brought in violation of law into this State?"

1. The law of this State (G. L. 1883, Sec. Chap. 132) provides: "Whenever any part of this State appears to be threatened with, or is affected by any epidemic or infectious disease, the State Board of Health may make and from time alter and revoke, regulations for all or any of the following, among other purposes:

1. For the speedy interment of the dead.
2. For house to house inspection.
3. For the provision of medical aid and accommodation for patients, physicians and nurses.
4. For the promotion of cleansing, ventilation and disinfection; and
5. Guarding against the spread of disease by quarantine or exclusion of any infected persons, and may by order declare any or all of the regulations so made to be in force within the whole or any part or parts of the district of any Local Board of Health in this State, and to apply to any vessels on any of the waters of this State, or to any railway cars or trains, or public vehicles of any kind, for the period named in such order, and may by any subsequent order, abridge or extend such period."

It will be seen from the above provisions, that your Board is clothed with ample authority to adopt all reasonable and necessary rules and regulations for the protection of the inhabitants of the State against infectious diseases. As to what rules and regulations will best subserve the interests of the State, has been largely left, and necessarily so, to the sound discretion of your Board.

2. The rules and regulations so established, may extend to, and must be observed by all companies engaged in the transportation of persons or baggage. The law not only gives you the power to quarantine, but it likewise confers the power to *exclude*. It must necessarily follow that you are vested with the power of making the admission of persons and baggage, of the above specified classes, into the State, dependent upon such reasonable rules and regulations as you may be disposed to adopt. Nor would such action on your part be an infringement upon inter-state commerce. The right of a State to protect itself against epidemics and contagious diseases, which is merely the right of self-preservation, has never been granted, if indeed it could be granted, to the Federal Government.

The foregoing fully answers, I believe, your several inquiries,

H. W. CHILDS, Atty General.

To put the questions raised beyond all doubt the Secretary wrote the following letter to the Attorney General: "..... I think the railroads will strenuously object to the detention of suspected immigrants either upon cars set out upon sidings, or in tents or barracks which the board may require them to furnish, and also of their care, food, etc. I understand your instructions to be that this board may insist upon such provisions when we find upon their cars immigrants reasonably suspected of having, or known to have infectious diseases, when to permit such persons to enter the State, and to proceed to their destination, would be to run a serious risk of communicating infectious diseases to our people."

"If I am not right in this inference be kind enough to notify me what your opinion is....." The Attorney General replies Sept. 20. "My former communication.....substantially covers the questions raised in your letter of the 12th inst. The railroad companies could not in justice be allowed to operate their lines regardless of the safety of the people of the State."

"Whatever reasonable rules may be necessary for the protection of the State may be adopted and enforced against such companies. There is no more force to the objection that the railroad companies may refuse to comply

with such reasonable regulation, than there is that steamship lines may refuse the same."

September 16th, the following additional instructions were sent to Inspectors:

All certificates of infection which immigrants bring with them, for themselves or their baggage, are to be endorsed by you (if they pass your inspection). Please instruct them to deliver said certificates to the Local Board of Health of the place where they are going in Minnesota, or beyond the State.

Asiatic Cholera was officially admitted to exist in New York City yesterday, and has been there probably since the first of the month, nor are they able to trace its origin, so that it is probable that it has escaped more than one quarantine, and that it is likely to come in the person or baggage of any other person of the same class, as in an immigrant from a suspected ship. You will therefore keep a sharp lookout, and make a record of such persons, to include name, where from, time en route, local destination in Minnesota, and other note you may see occasion to make, sending such lists daily to me for the information of the Local Board concerned.

Call the attention of conductors and train employees to the necessity of careful and constant outlook for persons so suffering, and that for public safety, as well as their own, the promptest information be given to you of anything which requires investigation. All this can be done unobtrusively, except where you deem it necessary to make inquiries of any individual, for which purpose you should see them privately.

It will be rarely necessary to detain a suspected person or baggage when you can discover his or her local destination in the State, so that we can notify the Local Board of Health, and keep persons and baggage under observation.

When such persons are going to St. Paul or Minneapolis, notify Dr. F. Hilbert, Inspector of this Board, care Union Depot Master, St. Paul, or Dr. F. B. Samson, same address, Minneapolis, and they can report them enroute.

SIGNED BY SECRETARY.

Saturday, September 10, the Secretary arranged for a meeting of the executive committee of the Wisconsin and Illinois State Boards of Health for the afternoon of the 11th. They met in Chicago and agreed upon essentially the plan of this Board, and a meeting was called for the next Wednesday of other State Boards, and a conference of railroad representatives was held at the same time. September 14, 1892, (see the plan of the State Board of Minnesota, on page 55, Vol. VIII., PUBLIC HEALTH, in last Appendix, and the conclusions of the meeting on page 70 of the same.) It will be observed that the certificate of the Canadian quarantine officer at Grosse Isle in the St. Lawrence, was given same standing as any other which had been refused by many Boards before.

This body of rules was of value as giving the western railroads a definite instruction for their agents at seaports, and threw the responsibility of disobedience directly upon the railroads who could not show that the conditions agreed upon had been complied with.

The large falling off in immigration under the increased restrictions—National and State—made the work of such inspection as we had to do, an easy one.

The inspection in Minnesota began September 6, and ended October 3, and the total of immigrants examined was 752 in all. Not a suspected case of cholera, or small pox, or of baggage requiring disinfection was discovered by the inspectors.

The inspection was the only method open to the Board to adopt for safety and for any additional certainty it might be able to give.

The most inspections were done in St. Paul, where 499 immigrants were examined and reported by name and destination, and over 100 second-class passengers were also examined but not so carefully.

Measles, the only infectious disease discovered, was in children, going to South Dakota (Westport), of which the Secretary immediately notified the Secretary of the Board of Health of that State.

The Minneapolis inspection included 187 immigrants, in 23 inspections.

An illustration of the value of sea-board notification was given from this station. September 30, Dr. Samson telegraphed examination of immigrants from S. S Scandia, cholera suspects going to Sauk Centre of whose departure from New York the Secretary had already sent notice on previous day, and October 1 telegraphed notice of immigrants from same ship going to Belle Plaine, of which Secretary had notice from New York on previous day and had posted Local Board.

The Winona inspection included 36 immigrants in 14 inspections. Answering question as to the authority of the inspector when disputed by a conductor, Secretary wrote, in name of the Board: "We agreed to detain trains as little as possible, but you must have time to do your duty and insist upon it. If the party referred to, or any one else, interferes with you, report in detail and have a witness or two."

Duluth inspection was intrusted to two inspectors as it was to include both steamers and trains. Dr. McComb, the senior inspector, examined 25 immigrants and made 12 reports. Dr. McGiffert made two reports of 5 immigrants. September 9, Dr. McComb wrote: "Very little immigration here; have inspected all Canadian boats arriving here and not found a single immigrant. Dr. McGiffert inspects all through trains, but since receiving blanks has not found material for a single report. Does not seem to me necessary to continue inspection much longer." Secretary replied, "conductors to telegraph date of arrival and cases of sickness on trains. Chance of infected immigrants very small; danger much greater from our own people." Dr. McComb acted alone after September 20, and stopped the inspection September 30.

The accounts for expenditures from "Cholera Emergency Fund" amounted in total to \$1,297.18, and is stated in detail in Appendix XI following.

## APPENDIX NO. X.

### LEPROSY IN MINNESOTA.

REVISED TO JANUARY 1, 1893.

BY CHR. GRONVOLD, M. D.

The Report relates in very conservative language the experience we have had for the last forty years with leprosy in Minnesota. In no other State that I know of are all known lepers registered and kept under observation, and all suspected cases carefully examined. The history of these cases has been very thoroughly studied. No further isolation than the use of their own beds and utensils is required, and this their own good sense and that of their relatives, as a rule, secures. It must be understood that the State Board of Health and the Local Boards have abundant power to enforce the strictest isolation, if found needful; but up to date there has not been any

occasion for the use of such power, as the disease is limited to the immigrants, and has never appeared in the descendants of lepers, nor in anyone born in the State. It is under constant and careful observation, and has been for the last eighteen years under the care of the State Board of Health. Of the eighteen lepers now known to be living in Minnesota, but two are county charges, and all but three are able to work. All are Norwegians and belong to the laboring class; none have leprous kindred in this country; in none is the disease known to have been caused by exposure to infection in this country; but in nearly every one there is record of exposure in Norway. All cases are under the observation of the Local Board of Health and of the State Board, and every report of a supposed new case is immediately investigated and examined by a physician familiar with the disease. The facts here officially stated will interest the students of a disease about which a good deal more has been written than is actually known.

C. N. H.

Norwegians began immigrant to America more than fifty years ago, most of them going to the Northwestern States - Wisconsin, Iowa and Minnesota - where they and their descendants form a considerable part of the population. Some of these immigrants were from parts of Norway where leprosy is endemic, and among them were some lepers. Norwegian physicians, aware of this fact, followed, to study the disease on foreign ground. Among them were Dr. J. H. Holmboe, surgeon in charge of a leper hospital in Bergen. He came in 1864, and found twelve lepers, of whom two had the first symptoms after their arrival here. He thought their health better, probably, than it would have been had they remained in the old home. In 1869-70, Prof. Wm. Boeck, of Christiania, Norway (joint author with Dr. Danielson of Bergen of "Traite de la Spedalskhed ou Elephantiasis des Grecs, Paris, 1848," published by the Norwegian Government), published his conclusions in "Nordisk. Medicin. Archiv," Band iii, No. 1. He found in the three States named eighteen cases of leprosy, of which nine had the first symptoms after their arrival in this country. All were proved to come from leprous families in the old country, except one, in which he suspected hereditary influence, although admitting the possibility of contagion. He ascribes all the cases to heredity, not believing the disease contagious. He thought lepers better off here in respect of their disease than they would have been in their own country. He says: "They have come away from the place where we see leprosy may originate spontaneously, and which certainly will favor its development when the disposition is inherited. They have settled on fertile lands, where they certainly have to work hard to make a living, but they generally undergo no hardships, as we in Norway understand the term. There is no work that can be compared with that done at the midwinter fisheries in open sea off the Finnmark coast, or the hardships suffered while tending the cattle on the high mountain plateaus, which causes so often bring out the latent leprosy."

Since 1870, when the above was written, investigations have been continued in Minnesota as to the number of lepers, their condition, and that of their families. There are medical correspondents everywhere in the State, who report all suspected cases to the State Board of Health, which then makes particular inquiries through its standing committee on leprosy, composed, since 1872, of the writer, and the Secretary of the Board. At this date, January 1, 1893, there are eighteen lepers known to live in Minnesota, of

whom eleven have the anaesthetic and seven the tubercular form of the disease.

Two cases of tuberculous leprosy died in 1892, having been lepers for fourteen and sixteen years, and have been dropped from the list. Two new cases were added in 1891 and two in 1892, and of the four, three have the tuberculous and one the anaesthetic form of the disease.

*Anæsthetic Cases.*—In one the disease was first recognized at least five years ago; its duration in the other nine averages nineteen years. The two oldest of this class are, respectively, seventy and seventy-four years of age, and have had the disease more than twenty-three and seventeen years respectively, while two others, sixty and fifty years of age, have had the disease thirty and thirty-two years.

*Tuberculous Cases.*—The average duration of the disease in these cases to date is six years, while in one the disease was first recognized a year ago. The longest duration of the disease in these cases is sixteen and fourteen years, in persons forty and thirty six years old.

The experience in this country has not been very long, although it already includes several generations. Such as it is, some of its results are: 1. In no children or descendants born in Minnesota of lepers—there are great-grand children—has there been any sign of the disease discovered, although under frequent observation. 2. Up to date no leper has been born in Minnesota. 3. In many cases the disease was not recognized for a long time after the arrival of the persons affected in this country—how long it is difficult to state, as the first symptoms are obscure, not noticed, or misunderstood; but in every single instance the leper has some time had his home in some place in the old country, where the disease was endemic, while in but a single case has infection in this country been suggested, but as that came from a locality in the old country that has been for years a nest of leprosy, the possibility is that he got it there. These facts, as far as they go, seem to suggest that the disease in this country is not so easily acquired as in some other countries. Looking for the cause, some points present themselves for consideration.

1. New houses with new furniture and furnishings, in a new country, harbor no sources of infection, and the better economical condition promotes the sense of need for cleanliness, both for health and comfort—a cleanliness which seems in leprosy to be the main reliance against contagion. 2. The commonly dry and always windy climate of this great inland plateau, with its great and sudden changes of temperature, open as it is towards the Gulf of Mexico, and towards the North Pole, may perhaps make it more difficult for the *materia peccans* to fix itself on persons and things. The hot summer that opens up the pores of the skin and drains the system that way, and the cold, stormy winters acting on the body somewhat differently, may have influence in that direction. That the climate must have some influence in preventing the spread of the disease, seems yet more probable, when we remember that the early settlers, often with a large family of children, lived for a long time in small, close, and badly ventilated log houses, closer, even, than they were accustomed to in their old homes. Even if they did not bring with them such sources of contagion as unclean houses, and old furniture

they at least had for some time old clothes, so that it would be a wonder if old and young could have observed the cleanliness necessary to prevent contagion if the effect of climate had not been of a nature to make contagion more difficult. It seems certain that the disease, once established, runs its regular course here as elsewhere, perhaps a little slower. 3. The change in the physical constitution of people who have lived here some time, the effect of acclimatisation and of other influences, may make the individual less susceptible to contagion. In 1888, Dr. G. Armauer Hansen, of Bergen, Norway, the discoverer of the bacillus lepræ, came to this country to study leprosy in the immigrated Norwegians and their descendants. He had taken the position in 1874 that contagion is the only source at present of leprosy, and that the disease is not hereditary. He gives the results of his investigations.†

"I cannot here relate all my observations in detail. I will only tell what I have found in regard to the occurrence, or rather the disappearance, of lepra in America (N. W. States). Of about 160 lepers who have immigrated into the three States named (Wisconsin, Iowa, Minnesota), thirteen are alive, who I have seen myself, and perhaps three or four more. All the others are dead. Of all the descendants of lepers (and that includes the great-grandchildren of some of them), not a single one has become leprous. This is, in short, the result of my investigation."

† Virchow's Archiv. Band, cxiv, 1833.

## APPENDIX NO. XI.

### "STATE BOARD OF HEALTH" FUND—FINANCIAL STATEMENT.

*January 1, 1891, to January 1, 1893.*

Appropriation, 1889-90.....	\$5,000 00
Expended by Board, 1889-90.....	4,805 58
Unexpended balance, August 1, 1890.....	2,694 42
The Auditor's report, 1891-92 shows this balance to have been \$2,817.49, which is explained by the fact that he paid the State Board of Health account for July, 1890, out of the appropriation for 1891, which makes the difference between the balance of the State Board of Health and the Auditor's—\$123.07—the July, 1890 account of the State Board of Health.	
Appropriation, August 1, 1890, to August 1, 1891.....	\$5,000 00
Expenses, August 1, 1890, to January 1, 1891.....	\$2,605 70
	2,605 70 5,000 00
Balance, January 1, 1891 .....	2,394 30
	\$5,000 00 \$5,000 00
Balance, January 1, 1891.....	\$2,394 30
Account of February 5, 1891, for January, 1891.....	\$255 84
" March 5, 1891, " February, "	259 39
" April 3, 1891, " March, "	285 13
" May 8, 1891, " April, "	328 20
" June 5, 1891, " May, "	257 32
" July 9, 1891, " June, "	29 85
" August 1, 1891, " July, "	21 94
Secretary's salary,* 4 months.....	833 32
	\$2,270 99 2,394 30
Balance turned over to Treasurer, August 1, 1891.....	123 31
	\$2,394 30 \$2,394 30

\* It was discovered, June 1, that appropriation was \$5,000 instead of \$7,500, and in order not to overdraw account the Secretary did not draw his salary for three months.

## STATE BOARD OF HEALTH.

65

Appropriation, August 1, 1891, to August 1, 1892.....		\$5,000 00
Account of September 1, 1891, for August, 1891.....	\$40 63	
" October 5, 1891, " September "	150 99	
" November 5, 1891, " October, "	199 78	
" December 10, 1891, " November, "	136 39	
" January 5, 1892, " December, "	74 54	
" February 5, 1892, " January, 1892	156 98	
" March 5, 1892, " February, "	187 66	
" April 7, 1892, " March, "	120 46	
" May 3, 1892, " April, "	189 95	
" June 4, 1892, " May, "	267 82	
" July 7, 1892, " June, "	162 11	
" August 22, " July, "	270 21	
Secretary's salary.....	2499 96	

Balance turned over to Treasurer, August 1, 1892.....

\$4,657 48
342 52

\$5,000 00	\$5,000 00
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\$5,000 00	\$5,000 00
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Appropriation, August 1, 1892, to August 1, 1893.....		\$5,000 00
Account of September 9, 1892, for August, 1892.....	114 48	
" October 13, 1892, " September, "	192 35	
" November 7, 1892, " October, "	115 07	
" December 21, 1892, " November, "	216 56	
" " 31, 1892, " December, "	345 86	
Secretary's salary, 5 months.....	1041 65	

Balance, January 1, 1893.....

2,025 97	5,000 00
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2,974 03	
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\$5,000 00	\$5,000 00
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	ITEMIZED STATEMENT, "STATE BOARD OF HEALTH" FUND—FINANCIAL STATEMENT		
	Jan. 1, 1891,	Aug. 1, 1891,	Aug. 1, 1892
	to	to	to
	Aug. 1, 1891	Aug. 1, 1892	Jan. 1, 1893
Clerks.....	\$ 259 33	\$ 429 76	\$ 180 65
Telegraph and telephone service.....	36 01	45 59	43 74
Books and binding for library.....	75 72	161 46	37 75
Paper for circulars and blanks.....	57 95	145 02	37 15
Laboratory supplies, apparatus and expenses.....	5 89	5 17	2 15
Stationery and supplies for office.....	14 28	33 18	12 47
Express and freight charges.....	16 98	23 51	2 83
Travelling expenses, members of Board.....	35 67	90 67	255 46
Fuel.....	5 75	36 00	18 25
Postage.....	168 53	174 96	77 53
Printing circulars, special reports and blanks.....	177 35	375 47	154 64
Expenses in control of infectious diseases.....	110 08	-----	-----
Expense of conference on infectious dis. with L. B. of H. ....	5 26	-----	-----
Secretary's salary.....	*833 32	2499 96	1041 65
Rent of office.....	60 00	54 00	20 00
Expenses of vaccine station.....	391 07	561 78	132 70
Lighting .....	17 80	20 95	9 00
	<b>\$2,270 99</b>	<b>\$4,657 48</b>	<b>\$2,025 97</b>

### "INFECTIOUS DISEASES OF ANIMALS" FUND—FINANCIAL STATEMENT.

*January 1, 1891, to January 1, 1893.*

Appropriation August 1, 1890, to August 1, 1891.....		\$3,000 00
Expenses from August 1, 1890, to January 1, 1891.....	\$573 97	
	573 97	3,000 00
Balance, January 1, 1891.....	2,426 03	
	\$3,000 00	\$3,000 00
Balance, January 1, 1891.....		\$2,426 03
Account of February 5, 1891, for January, 1891.....		\$ 59 25
" March 5, " " February, "	42 25	
" April 3, " " March, "	212 03	
" May 8, " " April, "	53 90	
" June 5, " " May, "	15 00	
" July 9, " " June, "	217 01	
" August 1, " " July, "	213 24	
	812 68	
Balance turned over to Treasurer, August 1, 1891.....	1,613 35	
	\$2,426 03	\$2,426 03

Appropriation, August 1, 1891, to August 1, 1892.....		\$3,000 00
Account of September 1, 1891, for August, 1891.....	\$15 00	
" October 5, " " September, " .....	116 39	
" November 5, " " October, " .....	52 19	
" December 10, " " November, " .....	37 14	
" January 5, 1892, " " December, " .....	33 39	
" February 6, " " January, 1892 .....	30 67	
" March 5, " " February, " .....	60 75	
" April 7, " " March, " .....	75 82	
" May 3, " " April, " .....	57 52	
" June 4, " " May, " .....	86 95	
" July 7, " " June, " .....	96 57	
" August 22, " " July, " .....	122 97	
	785 86	3,000 00
Balance turned over to Treasurer, August 1, 1892 .....	2,214 64	
	\$3,000 00	\$3,000 00
Appropriation, August 1, 1892, to August 1, 1893.....		\$3,000 00
Account of September 9, 1892, for August, 1892.....	\$52 92	
" October 13, " " September, " .....	91 80	
" November 7, " " October, " .....	61 67	
" December 21, " " November, " .....	92 07	
" 31, " " December, " .....	71 17	
	369 63	3,000 00
Balance, January 1, 1893.....	2,630 37	
	\$3,000 00	\$3,000 00

## ITEMIZED STATEMENT "INFECTIOUS DISEASES OF ANIMALS" FUND.

	Jan. 1, 1891 to Aug. 1, 1891.	Aug. 1, 1891 to Aug. 1, 1892.	Aug. 1, 1892 to Jan. 1, 1893.
Clerks.....	\$230 09	\$401 93	\$236 85
Telegraph and telephone service.....	19 75	.....	.....
Printing and paper for circulars and blanks.....	130 81	184 94	76 68
Stationery and office supplies.....	2 50	15 44	.....
Express and freight charges.....	45	60	.....
Fuel.....	5 75	7 50	23 25
Postage.....	38 00	31 00	2 00
Expenses in control of infectious diseases of animals.....	209 72	99 95	10 85
Rent of office.....	10 00	44 00	20 00
Vaccine station.....	165 70	.....	.....
Totals.....	\$812 68	\$785 36	\$369 63

## "VITAL STATISTICS" FUND—FINANCIAL STATEMENT.

January 1, 1891, to January 1, 1893.

Appropriation, August 1, 1890, to August 1, 1891.....		\$1,000 00
Expenses from August 1, 1890, to January 1, 1891.....	\$353 70	
" Balance, January 1, 1891 .....	646 30	
	\$1,000 00	\$1,000 00
Balance, January 1, 1891.....		\$646 30
Account of February 5, 1891, for January, 1891.....		\$81 25
" March 5, " " February, " .....	69 45	
" April 3, " " March, " .....	85 75	
" May 8, " " April, " .....	72 00	
" June 5, " " May, " .....	77 32	
" July 9, " " June, " .....	69 15	
" August 1, " " July, " .....	81 76	
	536 68	646 30
Balance turned over to Treasury, August 1, 1891.....	109 62	
	\$646 30	\$646 30

Appropriation August 1, 1891, to August 1, 1892.....		\$1,000 00
Account of September 1, 1891, for August, 1891.....	\$79 50	
" October 5, " September, "	88 96	
" November 5, " October, "	63 47	
" December 10, " November, "	85 72	
" January 5, 1892, " December, "	86 55	
" February 6, " January, 1892 .....	79 50	
" March 5, " February, "	113 76	
" April 7, " March, "	85 88	
" May 3, " April, "	63 65	
" June 4, " May, "	65 67	
" July 7, " June, "	71 00	
" August 22, " July, "	98 31	
		981 97
Balance turned over to Treasurer, August 1, 1892 .....	18 03	1,000 00
		\$1,000 00
Appropriation, August 1, 1892, to August 1, 1893.....	\$1,000 04	
Account of September 9, 1892, for August, 1892.....	\$1,000 00	
" October 13, " September, "	\$57 80	
" November 7, " October, "	57 78	
" December 21, " November, "	66 00	
" 31, " December, "	86 39	
	77 75	
		845 72
Balance, January 1, 1893.....	654 28	
		\$1,000 00
		\$1,000 00

## ITEMIZED STATEMENT OF EXPENDITURES "VITAL STATISTICS" FUND.

	Jan. 1, 1891,	Aug. 1, 1891,	Aug. 1, 1892	
	to	to	to	
	Aug. 1, 1891.	Aug. 1, 1892.	Jan. 1, 1893.	
Clerk.....	\$114 68	\$640 33	\$255 00	
Printing and paper for circulars, blanks, forms, etc.....	1 25	94 78	16 67	
Stationery and office supplies.....	1 30	11 36	11 25	
Express and freight charges.....	26 20	19 97	80	
Postage.....	92 60	183 53	52 00	
Telephone service.....	1 25	.....	.....	
Office rent .....	.....	22 00	10 00	
Total.....	\$536 68	\$918 97	\$345 72	

## "CHOLERA EMERGENCY" FUND—FINANCIAL STATEMENT.

Appropriation.....		\$15,000 00
Account, October 13, 1892 .....	1,297 18	
Balance, January 1, 1893.....	13,702 82	
		\$15,000 00
		\$15,000 00

## ITEMIZED STATEMENT "CHOLERA EMERGENCY" FUND.

Clerks.....	\$ 17 50
Telegraph service.....	34 58
Travelling expenses, members of Board.....	72 60
Postage.....	12 18
Printing .....	44 73
Inspectors .....	1,115 59
Total.....	\$1,297 18



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(See PUBLIC HEALTH IN MINNESOTA, in the appendix, for many details of subjects referred to.

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# PUBLIC HEALTH IN MINNESOTA,

A MONTHLY JOURNAL OF

STATE, MUNICIPAL, FAMILY AND PERSONAL HYGIENE, AND  
OF VETERINARY SANITARY SCIENCE.

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THE OFFICIAL PUBLICATION OF

THE MINNESOTA STATE BOARD OF HEALTH AND VITAL STATISTICS.

---

EDITED BY

CHARLES N. HEWITT, M. D.,

*Secretary and Executive Officer of the Board.*

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INCLUDING OF

Vol. VI.	- - - - -	January, 1891, to March, 1891
Vol. VII.	- - - - -	One Year, [twelve numbers.]
Vol. VIII.	- - - - -	March, 1892, to November, 1892

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# GENERAL INDEX

TO

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# PUBLIC HEALTH IN MINNESOTA.

OFFICIAL PUBLICATION OF THE STATE BOARD OF HEALTH  
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## INFECTIOUS DISEASES REPORTED DURING THE MONTHS OF DECEMBER, 1890, AND JANUARY, 1891.

### DISEASES OF MEN.

	DECEMBER, 1890.	JANUARY, 1891.
Diphtheria.....	{ cases 142 } deaths 42	{ cases 201 } deaths 75
Scarlatina.....	{ cases 47 } deaths 8	{ cases 73 } deaths 2

### DISEASES OF ANIMALS.

	DEC., '90.	JAN., '91.
Cases of glanders remaining isolated or not accounted for.....	9	9
Reported during the month.....	4	3
Killed.....	3	1
Died.....	1	0
Released.....	1	2
Isolated.....	2	0

Remaining, Feb. 1, 1891, isolated or not accounted for..... 9

NOTE.—Most of these are cases exposed to possible infection, and isolated for further observation.

MINNESOTA WEATHER SERVICE — REPORT, DECEMBER, 1890,  
JANUARY AND FEBRUARY, 1891.

IN CO-OPERATION WITH THE U. S. SIGNAL SERVICE.

Furnished by Corp. John Healy, Observer, Signal Service, in charge.

STATIONS.	ATMOSPHERIC PRESSURE.			TEMP. OF AIR.	No. of thunder storms...											
	EXTREME.				No. of clear days....						No. of fair days....					
	Mean reduced barometer...	Date .....	Lowest barometer.	Date .....	Highest barometer.	Monthly range..	Monthly mean..	Date .....	20.4	47	1.45	9	10	9	12	
Alma City.....	{ Dec.					20.4	47	1.45	9	10	9	12				
	{ Jan.					9.7	80	1.08	7	6	8	14				
	{ Feb.					18.1	70	.05	1							
Crookston.....	{ Dec.					12.8	56	.22	3							
	{ Jan.					3.2	67	1.63	7							
	{ Feb.					21.0	46	.50	7	8	11	12				
Daluth.....	{ Dec.	30.05	30.51	24	29.46	9	22.6	55	.19	6	4	18	9			
	{ Jan.	30.07	30.65	8	29.42	13	20.5	55	.67	12	13	10	8			
	{ Feb.	29.99	30.49	28	29.19	24	12.2	65	2.07	13	12	11	5			
Faribault.....	{ Dec.					23.0	68	.49								
	{ Jan.					21.6	51	1.01								
	{ Feb.					12.4	74	1.25	5							
Farmington.....	{ Dec.					21.0	46	.50	7	8	11	12				
	{ Jan.					21.4	42	1.00	4	13	10	8				
	{ Feb.					10.6	63	1.75	6	10	9	9				
Grand Meadow...	{ Dec.					20.5	46	.19	4							
	{ Jan.					20.2	47	1.50	4	7	11	13				
	{ Feb.					14.8	78	1.91	8	6	7	15				
L. Winnebigoshish dam.....	{ Dec.					16.9	57	.30	6	7	15	9				
	{ Jan.					13.3	60	.57	7	11	7	13				
	{ Feb.					5.6	71	1.15	10							
	{ Dec.					16.5	65	.17	4	4	15	12				
Leech Lake dam...	{ Dec.					12.4	62	.42	7	10	10	11				
	{ Jan.					5.9	77	1.35	11	8	10	10				
	{ Feb.					20.9	77	.63	.49	7	6	11	14			
Mankato.....	{ Dec.	30.10	30.56	12	29.59	10	20.7	63	.49	7	10	10	11			
	{ Jan.	30.07	30.61	8	29.57	13	22.4	45	1.43	7	10	9	5			
	{ Feb.	30.00	30.54	28	29.28	24	12.4	65	1.52	10						
Medford.....	{ Dec.															
	{ Jan.															
	{ Feb.															
Minneapolis.....	{ Dec.					26.4	53	.18	6	8	13	10				
	{ Jan.															
	{ Feb.															
Minneapolis.....	{ Dec.					13.4	67	1.07	11	6	12	10				
	{ Jan.															
	{ Feb.															
Montevideo.....	{ Dec.					24.3	52	.50	6							
	{ Jan.					10.8	65	2.11	8							
	{ Feb.					26.9	19.1	.65	.05	3	4	11	16			
Moorhead.....	{ Dec.	30.10	30.54	24	29.53	26	19.8	59	.91	8	13	6	12			
	{ Jan.	30.12	30.69	15	29.53	13	14.8	59	.91	8	13	6	12			
	{ Feb.	30.07	30.51	28	29.47	24	2.2	72	1.36	12	7	7	14			
Montevideo.....	{ Dec.					23.7	66	.19	6							
	{ Jan.															
	{ Feb.															
Morris.....	{ Dec.					21.0	55	.06	1							
	{ Jan.					8.0	70	1.06	5							
	{ Feb.															
Morris.....	{ Dec.					18.2	53	.15	2	11	9	11				
	{ Jan.					6.5	70	1.30	6	8	11	9				
	{ Feb.					23.7	63	.28	3	6	11	14				
Northfield.....	{ Dec.															
	{ Jan.															
	{ Feb.															
Pine River dam...	{ Dec.					11.6	76	1.98	8	7	10	11				
	{ Jan.					15.2	61	.18	3	7	7	17				
	{ Feb.					11.7	65	.55	6	17	1	13				
						3.0	81	1.26	7	20	0	8				

## MINNESOTA WEATHER REPORT—Continued.

STATIONS.	ATMOSPHERIC PRESSURE.			TEMP. OF AIR.	No. of thunder storms.....	No. of hail storms.....	No. of clear days.....	No. of fair days.....	No. of cloudy days.....	No. rainy days, 0.1 inch or more.....	Monthly Precipitation .....								
	EXTREME.																		
	Month reduced.....	Date.....	Month ly mean.....																
Pokegama Falls	Dec.	.....	.....	15.5	69	.26	5	.....	.....	.....	.....								
	Jan.	.....	.....	13.4	68	.84	8	.....	.....	.....	.....								
	Feb.	.....	.....	5.5	78	1.03	11	.....	.....	.....	.....								
Red Wing.....	Dec.	30.12	30.59	7	29.58	10	25.5	56	.17	3	5	9 17							
	Jan.	30.10	30.69	8	29.55	13	23.4	42	2.11	6	9	10 12							
	Feb.	30.04	30.56	28	29.30	24	15	70	1.85	11	7	9 11							
Rolling Green.....	Dec.	.....	.....	.....	.....	.....	22.6	62	.53	4	6	4 21							
	Jan.	.....	.....	.....	.....	.....	6.7	64	2.26	8	7	8 16							
St. Charles.....	Dec.	.....	.....	.....	.....	.....	22.3	49	.30	3	7	11 7							
	Jan.	.....	.....	.....	.....	.....	20.6	44	2.50	4	.....	.....							
	Feb.	.....	.....	.....	.....	.....	11.4	69	2.35	5	8	9 11							
St. Paul.....	Dec.	30.09	30.63	7	29.51	10	24.0	56	.10	6	8	11 9							
	Jan.	30.08	30.66	7	29.48	13	21	48	1.01	6	11	12 8							
	Feb.	30.01	30.54	28	29.25	24	11.2	69	1.18	11	8	11 9							
St. Vincent. . .	Dec.	30.05	30.59	24	29.38	26	18.9	79	.23	3	8	15 8							
	Jan.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....							
	Feb.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....							
La Crosse, Wis....	Dec.	30.15	30.57	12	29.63	10	26.5	54	.38	4	10	8 13							
	Jan.	30.11	30.70	8	29.52	1	21.6	40	2.10	8	13	9 9							
	Feb.	30.04	30.56	28	29.29	24	17.2	74	1.33	11	5	12 11							
Mean. ....	Dec.	30.094	30.556	.....	29.530	.....	21.7	59.8	.273	....	6.5	11.6 12.9							
	Jan.	30.49	30.67	.....	29.51	.....	19.0	51.3	1.09	6	11	9 11							
	Feb.	30.025	30.533	.....	29.297	.....	9.5	70.7	1.63	8.7	8.4	9.1 10.6							

## JANUARY, 1891.

REMARKS:—The temperature was 10 to 12 degrees above the normal in the South and East, while in Northwestern Minnesota the excess equalled 16 degrees. The precipitation was deficient near Lake Superior, about normal, in the central counties, and excessive in the extreme southeast.

Central Office, Minneapolis, Minn.  
February 13, 1891.

DISTRIBUTION AND MORTALITY FROM SPECIFIED DISEASES IN MINNESOTA  
DURING THE MONTHS OF DECEMBER, 1890 AND JANUARY, 1891. (CORRECTED TO MARCH 20, 1891.)

## DECEMBER, 1890.

Total deaths, 1,162 (males, 676; females, 486). In order of mortality the leading diseases make the following record:

*Diphtheria*, 84. *Tuberculosis*, (all forms) 95. *Pneumonia*, 80. *Bronchitis*, 36. *Scarlatina*, 12. *Measles*, 7.

A comparison of this record with that of the following and preceding months shows the influence of the influenza wave on our mortality.

## JANUARY, 1891.

Total deaths—1,055 (males, 561; females, 494); the lowest January record since 1887. In order of mortality the following is the record of the leading diseases:

*Diphtheria*—97 deaths, (9.2% of total mortality), invaded 35 localities and 23 counties; 55% of deaths occurred in populations of less than 2,000; 34% in St. Paul and Minneapolis. This mortality was in 1889 but 56.

*Croup*—15 deaths less than for any January since 1886.

*Tuberculosis*—(All forms) 93 deaths (males 26; females, 55); 8.8% of total mortality, and the least in January since 1887. Mortality in January, 1890 (155) was the greatest for many years, over 12% of the total mortality.

*Bronchitis*—37 deaths; as small as for any January since 1887; 42 deaths in January, 1890.

*Pneumonia*—76 deaths; smallest January record since 1887. In January, 1890, 178 deaths from this cause; over 12% of total.

*Enteric (Typhoid) Fever*—50 deaths; as large as any January since 1886; 35 deaths in January, 1889; as small as any since 1886.

---

**A DOUBLE NUMBER.**—Press of extra work, with diminished clerical help, has compelled the consolidation of January, and February numbers, but it has also enabled us to complete the Table of Contents, up to the beginning of Vol. VII.—the March number.

---

**I**NFLUENZA.—This world-wide nuisance has come again, but not with the violence, or fatality of a year ago, judging by the mortality returns. Its "special microbe" has not yet been discovered, if it have one. Until we know more of the facts of the matter than now, a good "working" hypothesis is found in the old theory that the specific cause is an atmospheric one, and that it is as likely to induce, or aggravate other diseases, as to produce a special and distinct variety of its own. Some of its effects appear in the mortality statistics, e. g. pneumonia, bounded from 49 deaths in December, 1889, to 178 in January, 1890, and phthisis, in the same time, from 92 to 139.

**R**ABIES SUSPECTED IN ECHO TOWNSHIP, YELLOW MEDECINE Co.—Two persons, father and son, were bitten and went to a Pasteur Institute for treatment. Many dogs were believed to have gone mad and were killed. Of the number, two, who bit the man and boy, were recognized and their heads were sent to the Secretary for experiments, which are now in progress. (April 4th, rabbits inoculated 20 days ago are well to-day.)

SMALL Pox is reported in Missouri, in Illinois from Missouri, and in one or two, other Eastern, States. Our greatest danger has always been from immigrants, and more from their infected clothing than from themselves. We have attempted to make some arrangement with the authorities on the Atlantic coast, Canadian and American, which will give us notice of danger from this source, with partial success.

The invariable rule for us is to watch all avenues of approach, none more carefully than the immigrant and his baggage.

VACCINATION.—The Secretary's report (page 142) states a condition of affairs which had been suspected, but not to the extent shown in the returns. Measures are being taken to put the matter in its true light before the people, and those whose duty it is to teach and protect the children who will be the greatest sufferers should small-pox find them unprotected. The inquiry is still going on and the assistance of Health Officers and physicians is confidently relied on to make it as complete as possible. Chairmen and members of Township will see where they can help in collecting the returns of the country schools upon the blanks we will send them.

---

THE THIRTEENTH REPORT OF THE STATE BOARD OF HEATH AND VITAL STATISTICS is made up of the numbers of PUBLIC HEATH IN MINNESOTA (January, 1889 to December, 1890, inclusive) and the papers which are published as the appendix to this number. We have added a complete table of contents to March, 1891, so that easy reference will be possible to the great variety of matter which the last volumes of PUBLIC HEATH contain. Only enough complete files were reserved, as published, to supply the members of the Legislature, and for our exchanges and public libraries. We cannot, therefore supply back numbers.

It has been repeatedly stated that although our edition is constantly increasing, the supply is nearly exhausted as issued.

Local Boards of Health must preserve their files for future reference, as the matter furnished is constantly called for in their every-day work.

THE SEVENTH CONSECUTIVE YEAR OF "PUBLIC HEALTH IN MINNESOTA" BEGINS WITH THE NEXT NUMBER (MARCH, 1891).—It was the pioneer in its field, in 1885, and its example has been followed in nearly every other State.

It has grown in variety of contents with the extension of work which it serves. A department devoted to the "*Health of Children in the Schools*" was added last year, and we are anxious to add another "*The Health of the Home*," if the "*Health Officers of the Home*," the *mothers*, will help us. One subscription, paid, for each Local Board of Health in the State, will enable us to devote four pages, each month, to this important subject. All the money sent will be spent on paper, printing and postage, and nearly 1,600 additional copies of the journal would go out, monthly, all through the state, on a noble mission. We will give the work of editing gladly, if the friends of healthy homes will furnish the subscription to pay for the mechanical expenses. Will Health Officers and members of Local Boards subscribe for a single copy, to be sent to whom they direct, and so enable us to make the experiment for a year?

Send as many subscriptions as you can immediately, so that the new department may begin with the April number.

---

THIS NUMBER includes 36 pages, yet excludes almost all the matter relating to current events and business, prepared for it.

#### *HEALTH OF CHILDREN IN THE SCHOOLS.*

---

THE SCHOOLS IN THE SPRING.—This is the season of "cleaning up," as much in and around the school house as in and about the home. The accumulations of all sorts, the results of the winter's occupancy, must be disposed of, and the effects of wear and tear call for more or less repair. Before the spring term begins, therefore, these things ought to be done.

FIRST: If there be a cellar, see that it is cleaned of all chips, saw-dust and other producers of foul odors and filth. The walls, and ceiling if possible, to be sweetened and whitened with fresh, caustic lime-water (white-wash) and all the windows opened and left open for the season. Coarse wire screens, or slats of wood, should be put in to keep out vermin,

including eats and dogs. This done, see that the building is put into decent repair, especially the floors, the walls and the ceilings. Then *saturate* the floors with boiled linseed oil, two liberal coats. Nothing will add so much to the durability of floors, make them so easily cleaned, and above all, add so much to the sweetness and purity of the room air as this. White-wash all plastered walls and ceilings, and oil all woodwork, including seats and desks which are not already painted. Wash the windows and fix the sash so that they are easily movable, up and down, and fixable in any desired position. If there are no blinds put up white cotton roller curtains, on the window frame, so as not to obstruct ventilation more than need be, when used to regulate the sunlight.

All these things are needful because ventilation begins where cleanliness leaves off. No amount of ventilation, practicable, can make the air over a dirty floor, or within foul walls, healthful and pure. Now look to the outside, the school-yard. First, see that the outhouses are sufficient for privacy and decency; that the vault is an earth-closet (a cheap and good plan will be sent on application to the Secretary). White-wash walls and ceilings here, too. Clean up the yard, plant trees and shrubs, with grass where practicable; paint the buildings and fence, and make the school house and surroundings attractive, and so better and healthier.

Diseases of the spring-time among children are those of the lungs, and of the contagious affections are measles, scarlet fever (*scarlatina*) and diphtheria. Coughs and colds mostly. The teacher should be on the look-out for sickness, and call attention to the Health Officer or Chairman of the Township Board (if in the country) to any appearance of infectious disease. They will furnish circulars on those diseases to any who ask. Teachers are always welcome to any advice the Secretary can give, but it is always best to apply for it to your Local Board of Health first, who are also more familiar with your local needs and opportunities.

#### VITAL STATISTICS.

THE REPORT ON THE VITAL STATISTICS OF 1889-90 is, at last, published and has been mailed to every Health Officer and Township Clerk who contributed, by his monthly returns of births and deaths, to the collection of facts upon

which it is founded, or if he is retired, to his successor.

To settle a question which has come up, so often as to indicate a belief, attention is called to the financial statement on page 4. It will be seen that the appropriation is expended for clerk hire, stationery, express charges, postage and fuel. The salary of the Secretary, who collects the returns, corrects mistakes works out the conclusions and makes up the report, is just what it was when he voluntarily assumed this new duty to which no salary is attached.

Those clerks who have professed to believe that the real work in collecting the births and deaths was theirs, while the income and play were only to be had in the Secretary's office will find evidence to the contrary in the report.

But to turn to the real intention of the Vital Statistics we ask every Health Officer and Clerk to read the preface on page 7, and the "Comparative Study of Certain Causes of Death in Minnesota," on pages 108-111, with the note at the end of the report.

I cannot conclude this reference without thanking, sincerely, those Health Officers and Clerks who have faithfully helped in the long struggle for *accurate monthly* returns, and congratulating them that so much has been done and so much more will be done in the next two years. This department will contain many a valuable conclusion drawn from the work of the last two years, which is directly due to their faithful and steady cooperation.

C. N. H.

#### *IMPORTANT TO NEW TOWN CLERKS.*

GET the register of births and deaths from your predecessor and with it all the blanks for returns.

Blank No. 1.—Report of a Birth.

Blank No. 2.—Report of a Death.

These are to be used by physicians, midwives and by parents and housekeepers. (See section 3, chapter 114, laws of 1887.) The clergy will be able to give you the clue to these facts, which do not come in the regular course. Remind all who violate the law of the penalty, and ask for regular returns from physicians of all births and deaths. Furnish them with blanks No. 1 and 2.

Blanks No. 3 and 4 are different sizes of the same form.

In sending for blanks use a postal card and name the blanks wanted by their number.

# PUBLIC HEALTH IN MINNESOTA.

OFFICIAL PUBLICATION OF THE STATE BOARD OF HEALTH  
AND VITAL STATISTICS,

PUBLISHED MONTHLY AT THE OFFICE OF THE BOARD, RED WING MINN.

CIRCULATION, 3,700 COPIES.—SUBSCRIPTIONS, FIFTY CENTS PER ANNUM.

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MARCH, 1891.

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## INFECTIOUS DISEASES REPORTED DURING THE MONTH OF FEBRUARY, 1891.

### DISEASES OF MEN.

Diphtheria .....	{ cases, 188
	{ deaths, 57
Scarlatina.....	{ cases, 28
	{ deaths, 2

### DISEASES OF ANIMALS.

Cases of glanders remaining isolated or not accounted for.....	7
Reported during the month.....	0
Killed.....	0
Released.....	2
Isolated.....	0

Remaining, March 1, isolated, or not accounted for..... 7

NOTE.—Most of these are cases exposed to possible infection, and isolated for further observation.

## MINNESOTA WEATHER SERVICE.—REPORT FOR FEB. 1891.

This report was published with those for December and January, last month, which see.

**D**ISTRIBUTION AND MORTALITY FROM SPECIFIED DISEASES IN MINNESOTA  
DURING THE MONTH OF FEBRUARY, 1891. (CORRECTED TO MARCH 20,  
1891.)

NOTE.—Population of the State (census of 1890) for the purpose of this report is as follows:

State, 1,301,826. Cities of more than 100,000, (St. Paul and Minneapolis) 297,894. Cities of 15,000 to 50,000, (Duluth and Winona) 51,323. Cities of 5,000 to 15,000, (Stillwater, Mankato, St. Cloud, Faribault, Red Wing, Rochester), 44,752. Cities of 2,000 to 5,000, (census returns not yet at hand.) Villages and Townships under 2,000, (census returns not yet at hand.)

*Total Deaths*, 905 (males 494, females 411). Last month this mortality was 1,055; in February, 1890, it was 859, while the average of February for the last four years was 1,014.

In St. Paul and Minneapolis, with 22.88% of the population of the State, the mortality was 341, or 37.63% of the total mortality.

*Measles*. Mortality 17, and increasing. December, 1890, 7; January, 1891, 11. Distribution, 11 localities in 9 counties.

*Diphtheria*, 45; not half as great as last month (97), and smaller than for any February since 1886. Distribution, 22 localities in 19 counties.

*Croup*, 20 deaths, distributed in 19 localities and 15 counties. The average mortality from this cause in February for the last five years was 15.8.

*Enteric (Typhoid) fever*, 28 deaths, and nearly the average for the last five years. Distribution was 10 localities in 10 counties.

*Tuberculosis*. (Phthisis, 79; other forms, 13), 92; 9.06% of all deaths, (males, 53; females, 39.) Average mortality in this month, for the last four years, 105.

*Bronchitis*, 33 deaths, in 11 localities and 11 localities.

*Pneumonia*, 92 deaths, less than the average (107) for the last four years.

**T**HE ANNUAL ELECTION OF TOWNSHIP BOARDS occurred, this year, on the 10th of March. There are in the State 1,323 Townships, and more than 1,267,80 per cent, had made their report of organization to the Secretary by the 1st of April (*i. e.* within 20 days), and at this date (April 30th) but 40 Boards are behind with the official notice. These will be in this week, it is expected.

**R**E-ELECTION OF TOWNSHIP OFFICERS—This has always been a matter of great concern to the Secretary, who, naturally, prefers an officer who has had previous experience. Here is the record for three years:

	1889.	1890.	1891.
Chairmen re-elected.....	51%	57.3%	56.4%
Clerks re-elected.....	79%	80.7%	80.3%

Which means that the people of townships are learning

the necessity for more permanence in their organization, and that experience in official duty, other things being equal, is a valuable qualification particularly in Boards of Health.

**S**MALL POX was reported, officially, to be prevailing in St. Louis in March, but the Seeretary was unable to get satisfactory details. Since then it has spread thence to Chicago and Sparta, Ill., and April 21st it appeared at Wright's Ferry, in Wisconsin, on the Mississippi river, a few miles from the south-eastern border of Minnesota. Nothing has been reported from Iowa, and there is little danger of spread from any of the places named, except St. Louis, possibly, on which city the tramp class, coming at the opening of navigation, may be exposed to the infection, and escape before arrested by the local Board of Health. We are taking every precaution, and should any Board diseover a suspicious case of eruptive disease it will do well to isolate the person, and all who have been exposed to him, till a reasonable time shall reveal its true character. Notify the Secretary immediately, in brief by telegraph, and write full details by earliest mail.

**T**HE MAY SANITARY INSPECTION will be due when this number of PUBLIC HEALTH reaches those whose duty it is to make it. Attention is called to the article on the subject which will be found in the supplement.

We do not know any better reason for the thorough performance of this duty than is there given.

Health Officers who complain that they are not appreciated or are grudgingly paid, will find no stronger argument for the support of the Board of Health, and the compensation of the Chairman, than the evidenee which the May Sanitary Survey affords. It appeals to the thinking and careful citizen, and to the anxious mothers, if it is a plain statement of the dangers which center in domestic nuisances, with a review of the faets of disease prevalence for the year pastf and published in the newspaper taken in the district. The appreciation of the Board of Health will be proportioned, almost always, to the evidence so presented, not of its legal existence and its apparent necessity, but of the work it has actually done to preserve health and ward off disease for the community it

serves. Faithful and steady work is the only road to popular popular confidence for Boards of Health.

VACCINATION STATISTICS:—The inquiry which we have been making has already secured returns from more than 15,000 school children, scattered all over the state, in city, village and township schools, and of ages from 8 to 20 years. Of this number, at least, 70 per cent give no proof of the operation (*i. e.* a scar, a certificate or any memory of its performance.) The record is constantly growing, but the per cent of neglect gets no smaller. This fact will be unpleasant news to the most of our readers, but is of too much importance to be neglected, and we give it, unhesitatingly, the prominence it deserves.

What is to be done about it? It would be a matter of little concern to the people, or to executive officers of the State Sanitary Service in any locality, if vaccination was not the protection against small-pox, which we know it to be, nor if it could, when properly used, convey, with itself, the infection of a more dreadful disease than small-pox, as is so frequently charged. It is sufficient for our present purpose to state that nothing of that sort has happened in our experience in Minnesota, nor has it ever been stated that it had. How then are we to account for the great and growing neglect of a practice which has been our mainstay against small-pox? It is a fact that the decline began when the charge that humanized vaccine was the means of transmitting other diseases, became common, and animal vaccine was proposed as a safe substitute. The production of animal virus became a business, and competition cheapened the quality and the price of the product. Popular faith was easily transferred, and so was a considerable proportion of professional confidence. There are not many physicians in our state who insist upon humanized vaccine and use no other; there are quite a number who prefer it when they can get it, but who are willing to use the animal vaccine as a substitute, but the great majority prefer the last as free from suspicion of transmitting other disease; as more readily procurable, and as more acceptable to their clients. It was not long after the general substitution of animal for humanized virus when it was discovered that its operation was some-

times violent; that it required a larger wound and more virus than the other form, for success; and that failure was of frequent occurrence, even in the most careful hands. Profession and people hesitated, delayed till necessary, "decided to wait," and for a great variety of reasons, and often for no reason at all, the practice has been neglected, till to-day a large proportion of the school children are unprotected, and it is probable that comparatively few children under school-age are vaccinated.

It must be distinctly understood that a very large proportion of this neglect is due to carelessness and indisposition to take the trouble, or to incur the expense, and possible sickness of the operation.

There is no real opposition to vaccination as a protection against small-pox, for that is as much an article of popular, as of medical, faith. Two things are necessary to restore the practice to its proper use. First: That medical men setting the example of vaccination and re-vaccination in their own persons and families, urge it upon parents as an important duty which they owe to their children. Second: That they be able to offer a vaccine with every possible guaranty of its purity, protective power, and safety.

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**D**OES VACCINATION WITH THE VIRUS OF COW-POX PROTECT FROM SMALL-POX? Why certainly! would be the almost unanimous reply in this State, and in every other of the United States, for that matter. The question has been deliberately, and officially, reopened in England to satisfy the persistent clamor of a small minority of people who objected, originally, to the compulsory feature of the English law, but now seem determined to prove the practice not only useless, but dangerous. The opposition to the compulsory clause assumed such proportion there, two years ago, that the authorities have ceased to enforce the penalty. Fortunately, vaccination is not compulsory in Minnesota, though it has repeatedly been proposed to make it so. Had it not been a feature of the English law it is very doubtful if a royal commission could have been obtained.

That commission has been sitting two years, has published three large volumes of evidence, and shows no signs, as yet, of fatigue or adjournment. It is proper that England, where

vaccination was discovered and first used, should incur the expense and labor involved in a careful, painstaking, review of the whole subject. The evidence already in is enormous in amount and variety, the commission giving the freest liberty to any one who has pertinent testimony to give. The result will be a mine of facts buried in a mountain of rubbish. The composition of the commission justifies the belief that its report will put most of the questions raised at rest, and save many similar inquiries elsewhere.

Meanwhile some of the American Sanitary Journals have begun to dispute about the matter. It is time that popular interest in the subject be awakened, in our own State and we propose to discuss it in the light of our own experience, which has been large enough, and long enough, to help us to a very satisfactory answer. Since 1872, when the State Board of Health was organized, there have occurred 79 distinct outbreaks of small-pox in cities, villages and townships, as also in logging camps in the woods, away from civilization, and with no legal local organization to help us. So varied an experience has called for the use of every known method of dealing with the disease, for prevention, suppression, or control, and has put us in a position to judge of their relative value with no more than illustrative reference to other evidence than that of Jenner himself, and the history of our own work.

#### VITAL STATISTICS.

**I**MPORTANT TO HEALTH OFFICERS AND CLERKS OF TOWNSHIPS—There is frequent complaint that back returns are not immediately accounted for. So much has been written on this subject and the complaints are so many, that it will save time and reach every one concerned if mention is made of the matter here. Clerks particularly, will please read and reflect before writing the Secretary.

“*Back returns*” are reports of births and deaths between March 7, 1887 and January 1, 1891, not duplicates of previous returns.

No returns previous to March, 1887 will be accepted, as the duty of the Secretary began at that time.

All such reports must be made on other blanks than those

used for "*current reports*" (*i. e.* those made by the 12th of the month, after the one to which they belong.) Not more than the returns of one year are to be entered on one blank, and they must be arranged by months. Such reports, not duplicates, and made in accordance with law, will be received, and filed and sent with certificate to the clerk of court after the regular (those on time) reports are sent in. This will be in January, 1892. It is entirely out of the question to attend to the back returns before, as the regular returns have, and ought to have, the precedence.

The regular work of VITAL STATISTICS in this office involves the receipt, classification, filing and recording of over 2,000 returns of births and deaths, which require about 4,000 separate entries in our books monthly. On the average more than 100 letters have to be written each month in correcting these returns.

Then it must not be forgotten that the first and most important use of the returns of deaths, in this office, is to help in the search for, and discovery of, preventable disease. To that end "back returns" are of comparatively little value. All this for the purpose of making clear to complaining clerks why the work of this office is delayed and deranged by the attempt to account for "back returns" before the end of the year in which they are received.

*Payment for "back returns"* is the question for the clerk of court and county auditor. The Secretary's duty is done when he has filed with the clerk of court a certificate of the facts.

"*Delayed returns*" (*i. e.* those due, but not at hand) of the current year, make a great deal of trouble because they are necessary to make up the monthly returns, especially of infectious disease.

*Always use the proper blank* upon which to make returns of births or deaths to this office. There are four blanks which this board provides:

No. 1. For the return of a single birth to the Health Officer or Clerk.

No. 2. For the return of a single death to the Health Officer or Clerk.

No. 3. For Health Officer or Clerk to report births for last month.

No. 4. For Health Officer or Clerk to report deaths for last month.

Keep stock of blanks, and ask for what you need by postal card to the Secretary, calling for them by their numbers.

#### *HEALTH OF CHILDREN IN SCHOOLS.*

*H*EALTH Officers and Chairmen will notify Superintendents of Schools in cities, and teachers in country districts, of the whereabouts of infectious diseases, so that children may be forbidden attendance till they bring proper certificate, which is one signed by one of these officers, indicating that all danger is past and that the person named may be re-admitted to school.

*Out of doors as much as possible*, should be the rule for children at school as at home, at this season. Now is the time to teach natural science by the most delightful of object lessons, in the open, and from the book of the Maker Recess should be the principal study hour, and be extended.

*Vaccination of Children in Schools*—Little blanks, to be filled by the teacher, are being sent to the clerks for distribution, and a copy is included herewith. Clerks of schools and teachers will greatly oblige us by filling this blank and sending for as many more as they can use.

*Statistics of Vaccination in the Schools*—We are collecting evidence to show what proportion of school children are protected by this operation against small-pox, and how many are not. When we began the inquiry we knew that the number unprotected was considerable, and had repeatedly called attention to the fact that vaccination was being neglected more and more. When the returns for more than 10,000 children were in they were classified and the result, after making all reasonable deductions for possible error, were published in the Secretary's report to the State Board, and is re-printed in this number.

To put the matter beyond all question the inquiry is being steadily pushed and as soon as possible the facts, as obtained, will be published for common information.

Meantime we ask the help of all to get the statistics asked for as speedily as possible, and will furnish blanks, envelopes and postage for reports, to all Health Officers, Clerks and Teachers who will make them.

We feel safe in assuming that all feel anxious, as they ought, to know the truth, and secure protection as soon and as perfectly as possible. The appeal must be made to the intelligence of the people ultimately, and if properly and fairly done it will surely win, and vaccination be again restored to its proper place as the most reliable and safest of our helpers against disease.

*Supplement to PUBLIC HEALTH IN MINNESOTA, Vol. VII., No. 1.*

Circular I. Sanitary Inspection.  
Revised Edition—5, 5, 1891—4,500.

STATE BOARD OF HEALTH OF MINNESOTA.

*MAY INSPECTION OF CITIES, VILLAGES AND TOWNSHIPS.*

The law requiring this inspection reads as follows:

"He (the Health Officer) shall make once a year, and oftener if necessary, a thorough sanitary inspection of said town, village, borough or city, and present a written report of such inspection at the next meeting of the Board of Health, and he shall forward a copy of said report as soon as rendered to the State Board of Health." Chap. 4, Laws of 1885. Sec. 2.

The evident necessity for this annual examination of the sanitary condition of all inhabited places has made it one of the established and regular duties of Boards of Health in Minnesota. Copies of all the laws, which together, make up the Sanitary code of the State, are on file with every Local Board, and are well known to Health Officers and Chairmen. In case any copies are lacking they will be promptly furnished from this office, on application.

The fact is that while no one disputes the importance of this inspection, the number of Health Officers and Chairmen who make it "a thorough sanitary inspection" as the law requires, is not as large as it should be. It is very clear that in proportion to the thoroughness of the sanitary survey will be the thoroughness of the sanitary work which follows it. The reason is evident, for where is the faithful Health Officer or Chairman of a Township Board of Health to find occasion and stimulus for intelligent and efficient work, if not in a knowledge of its necessity derived from a careful study of the sanitary needs of the people for whom it is to be done?

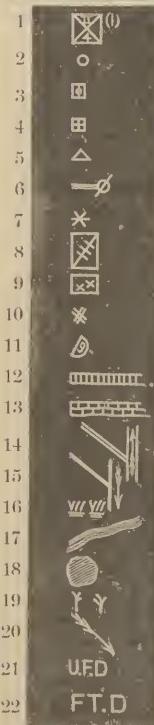
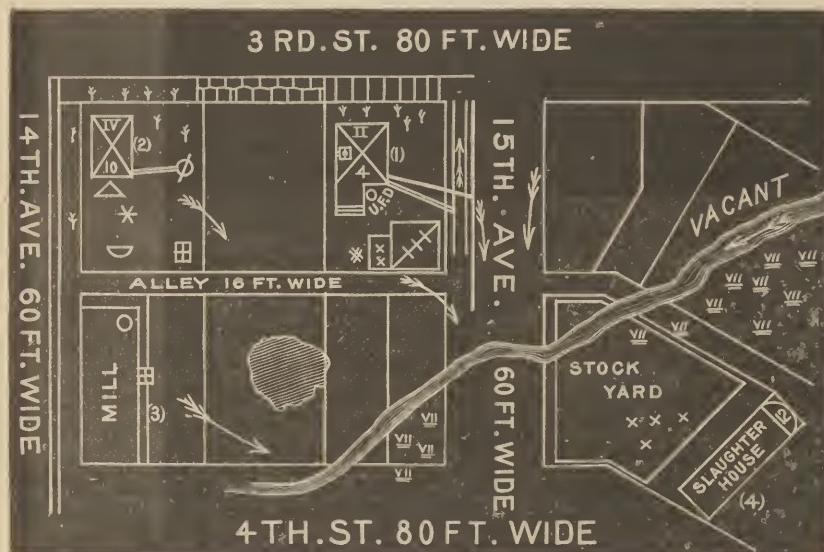
*The central fact of all sanitary work and methods, in any centre of population, whether a family, or many families, in township or city, is the constant production, and presence, of decomposing animal matter, where it is a perpetual menace to the purity of the air, water, and food supply of men, women and children.* Outside the waste products of offensive trades and manufactures, the dangers from this organic matter become poisonous, are centered in the common receptacles of such matter, the privy, the cess-pool, the manure heap, and the kitchen slop and garbage pile. Common experience, and the scientific study of the direct relation of these things to disease, prove them to stand, often in the relation of cause, and always to be important. They are, themselves, easily accessible, and may be prevented or regulated. The individual owner follows the almost invariable rule, if not prevented, i. e., as soon as one "hole in the ground" is full he fills, or rather covers it, and digs another alongside proceeding as before, and as for the cellar cleans it when he has to, or is compelled to do it. Most other sources of danger, to be discovered by the May inspection, are directly related to these, and so to find, suppress or regulate them is the first object of the survey. A very common mistake and not confined to non-professional people either, is to suppose, or act as if they believed, that clean streets and alleys were enough to prove the village or city where they are, to be clean. Streets and alleys may be clean while houses and lots adjoining are filthy with the abominations above referred to. These facts the sanitary service must not ignore or forget, nor permit the people to do so either. Now to get at the truth in these matters there is but one way, and that is to make thorough and systematic sanitary inspection. On the next page will be found a diagram for recording such survey. The Health Officer who will complete this record once, as here directed, will find his future surveys comparatively easy, and will have so systematized his work that nothing essential can escape him. It is important that this record be made as complete as possible at once. Suppose an outbreak of disease in any locality so surveyed, a moment suffices to give the Health Officer its present sanitary condition, and to enable him to judge what to do; how the disease is likely to affect other districts, if infectious; and he is able to lay out his plan for control, promptly and with reasonable assurance of success.

*Fore-knowledge of sanitary condition is the most important of the local factors of disease prevention or control, and is therefore the first duty of Boards of Health.*

## MODEL OF A PLAT.

To be used in making and recording a sanitary survey of a farm, lot or block (as the case may be), as parts of a township, village or city survey. (The signs illustrated and described below, enable the record to be made with the minimum of notes.)

NO. OF PLAT.....



1. House; Roman numeral, (e.g., II) indicates adult population. Arabic (e.g., 4) child population. number in parenthesis, (e.g., 1) reference number of house.
2. Well: if used for drinking purposes, mark u. f. d.
3. Water or earth closet.
4. Privy, with ordinary vault: see 23 below.
5. Cistern: if used for drinking purposes, mark u. f. d.
6. Cess-pool and drain from house.
7. Garbage heap.
8. Barn; marks on diagonal indicate horses and number of same.
9. Shed; marks indicate cattle and number of same.
10. Manure heap.
11. Pig pen; numeral (e.g., 9) indicates number of occupants.
12. Plank sidewalk.
13. Stone, brick or concrete sidewalk.
14. Water main and connection with house; arrow indicates direction of flow.
15. Sewer and connection with house: arrow indicates direction of flow.
16. Swamps or wet ground.
17. Flowing stream.
18. Stagnant pool.
19. Trees.
20. Arrow indicates direction of surface drainage.
21. U. F. D., used for drinking purposes.
22. Ft. D., followed by numeral, indicates number of feet deep.
23. W. T., means water tight.

## NOTES OF MODEL PLAT.

(1.) Two Adults, four children.

*Water Closet*—Clean and odorless, and drain to sewer perfect.

*Water supply*—City, for other domestic use than drinking.

*Well*—Used for drinking; not measured (should be). Water good: the well is cemented to bottom.

*Cellar*—Clean and light.

*Barn*—Three horses, and clean.

*Cow shed*—Two cows, and clean.

*Manure heap*—Large, and to be removed.

(2.) Four adults, ten children. Cess-pool a "hole in the ground," covered. Endangers well of (1) and must be made water tight, and regularly cleaned or, better still, a connection made with sewer.

*Cistern*—Well made, brick filter; water clean and good.

*Garbage*—To be removed.

*Privy*—"Hole in the ground," to be cleaned and filled, and a water tight earth closet substituted. (For description of earth closet see circular to be obtained of the Secretary.)

(3.) *Mill*—Clean. Privy, "hole in the ground" and foul. (Order as in No. 2.) In adjoining lot is a shallow pool to be drained into creek.

(4.) Slaughter house and stock yard, twelve hogs and four steers, fairly clean, but to be moved to another place because of the low level of the soil and the fouling of water and air. (See Chapter 222, Laws of 1885.)

*Alley*—Clean. Streets in good condition except where Fifteenth avenue crosses creek. Should be filled so that creek is confined to its bed. As a natural outlet for surface drainage, creek should be protected from pollution by sewers or by collections of manure and garbage.

*Vacant lots*—Clean and in grass.

*Plank walk*—Rotten and to be repaired.

*Disease prevalence*—Scarlatina by infection in (1) last summer; isolation; disinfection; recovery. No spread.

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The above notes from a Health Officer's note book illustrate the use of a plat, and the advantage of a simple set of symbols in the rough sketch which is used for "field" notes in sanitary surveys. In making the transfer from note book to the permanent record (after many experiments), I suggest the using *one sheet of letter paper* to each plat. The *first page* to contain No. of plat and brief description of it; next enter on same page, the *date* and *sanitary results* of the inspection. Below this, leave space for records of subsequent dates and results. The *second page* to contain the plat of the lot, block or grounds in question, as in the model. It is not necessary to draw this to scale; measurements may be made as need be. The symbols make a full record easy, without crowding the spaces. *Data liable to change*, (as No. of inhabitants in house or barn and the like), *may be made in pencil*, and easily changed at next inspection, if need be. *Pages three and four*, to be used for notes, best arranged in *order* as above, and in a settled order, to facilitate easy comparison of the records.

These sheet records so made, should be bound into a volume and paged. *Two indexes*, one before, for finding the record of any given plat; one behind, for a "*sanitary order*" and "*disease prevalence*" reference, make the record complete.

*THE MOST IMPORTANT POINTS TO BE LOOKED AFTER IN  
THE ANNUAL INSPECTION.*

1. The number, construction, condition and location of all privies, cess-pools or other collections of fluid or semi-solid, filth.
2. The location and character of all other collections of refuse, animal or vegetable matter, now, or likely to become, a nuisance or cause of sickness.
3. The location and construction of wells and cisterns; their condition, and that of other sources of water supply, for public or family use; the source of the water, and in case of disease, or reasonable suspicion of its qualities, its examination. Springs and wells are to be studied, particularly with reference to 1 and 2. (In all cases of suspected disease from the use of a water a sample will be examined for a Local Board, at the Laboratory of the State Board, by the Secretary, free of expense, except for collection, containers, and express charges. Apply to him for the necessary blanks, and instructions before sending samples.)
4. The character, capacity, construction, and efficiency, of all drains, sewers, or other apparatus or methods of disposing of slops and other fluid refuse.
5. The condition of lots (inhabited or not), streets and alleys, as respects drainage and cleanliness.
6. The location of all trades or employments, "dangerous to the public health, or a nuisance; or attended by noisome or offensive odors, or otherwise injurious to the estates of the inhabitants." These trades are chiefly butcher shops, slaughter houses, stock barns, sheds, or yards, hog pens, dairies and creameries. (Chapter 222, Laws 1885.) Please report particularly, the number, character, and condition of these trades. The condition of stock yards to be carefully investigated.
7. The care and diseases of domestic animals, the condition of the barns, sheds, or pens, occupied by them, as affecting their health, and any other facts bearing upon public health, for example, milk supply, condition for slaughter of animals intended therefor, infectious disease, etc. (Chapter 200, Laws 1885.)
8. The public disposal of night soil, garbage, offal or other vegetable or animal refuse.
9. The condition purity and abundance of the public water supply.
10. The same facts as to the public sewer system.
11. The sanitary condition of buildings used for public assemblies, particularly school houses and places of amusement.
12. Sanitary condition of hotels, common boarding, and tenement, houses, hospitals, poor houses, jails, lockups, livery stables, railway station houses, and stock yards.
13. Stagnant pools, swamps or marshy lands adjacent to residences, or liable to affect, injuriously, the public health.

By order State Board of Health,

CHARLES N. HEWITT, M. D.,  
Secretary and Executive Officer.

STATISTICS OF VACCINATION IN.....  
SCHOOL

OF.....  
MAN.

Date of examination.....  
Reporter.....

AGES.	Totals.	Virus unknown.	Humanized Virus.	Animal Virus.	Not vaccinated	Vaccinated	Two good cicatrices.	One good cicatrix.	Four or more good cicatrices.	Three good cicatrices.	Four or more good cicatrices.
						but no cicatrix.					
Under 8 yrs.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
8 to 10 yrs.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
10 to 12 yrs.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
12 to 14 yrs.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
14 to 16 yrs.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
16 to 18 yrs.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
18 to 20 yrs.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
20 years and over.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Totals.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

With Charimen, Health Officers, Town and School Clerks, send for as many as they can use, and  
so help to get the statistics of vaccination in our schools?

Appendix II, Public Health in Minnesota, No. 1, Vol. VII, March, 1891.

NOTES:—



# PUBLIC HEALTH IN MINNESOTA.

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VOL. VII. NO. 2.

APRIL, 1891.

WHOLE NO. 74

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## INFECTIOUS DISEASES REPORTED DURING THE MONTH OF MARCH, 1891.

### DISEASES OF MEN.

Diphtheria .....	{ cases, 77 deaths, 29
*Scarlatina .....	{ cases, 93 deaths, 2

### DISEASES OF ANIMALS.

Cases of glanders remaining isolated or not accounted for, March 1.....	12
Reported during the month.....	21
Killed.....	7
Released.....	2
Died.....	5
Isolated.....	1

Remaining, April 1, isolated, or not accounted for..... 13

NOTE.—Most of these are cases exposed to possible infection, and isolated for further observation.

\* Includes an endemic in Sand Creek Township, Scott County, of 70 registered cases and no deaths, but two had medical care.

## MINNESOTA WEATHER SERVICE.—REPORT FOR MARCH, 1891.

Furnished by Corp. John Healy, Observer, Signal Service, in charge.

STATIONS.	ATMOSPHERIC PRESSURE.				TEMP. OF AIR:	No. of thunder storms...							
	EXTREME.					No. of hail storms.....							
	Mean reduced barometer....	Monthly range.....	Date.....	Lowest barometer ...		No. of clear days.....	No. of cloudy days.....	No. of rainy days, .01 inch or more.....	No. of fair days.....				
Alma City.....	30.05	30.50	24	29.41	30	21.9	56	1.05	11	12	10	9	2
Crookston.....						15.1	85	.49	9				
Duluth.....	30.09	30.60	25	29.46	31	19.5	50	3.13	15	11	12	8	
Faribault.....						22.0	70	1.47	9				
Farmington.....						24.6	51	3.50	12	14	11	6	
Grand Meadow.....						24.8	66	1.49	7	15	6	10	1
Lake Winnibigoshish.....						18.9	72	1.10	9				
Leech Lake.....						18.4	84	1.41	11				
Mankato.....	30.05	30.49	24	29.43	30	24.9	54	2.10	11	14	10	7	2
Minneapolis.....						25.0	54	1.42	12	17	6	8	
Moorhead.....	30.12	30.67	24	29.62	10	13.7	71	1.46	10	7	14		
Montevideo.....						20.6	62	1.16	5				
Morris.....						17.8	69	1.55	6	10	9	12	
Northfield.....						23.0	56	1.22	7	16	4	11	
Pine River Dam.....						16.6	86	1.49	9				
Pokegama Falls.....						23.1	83	1.37	7				
Red Wing.....	30.08	30.58	1	29.43	31	24.8	57	2.04	10	9	18	4	2
Rolling Green.....	30.07	30.46	25	29.54	30	20.2	52	1.70	7	20	4	7	1
St. Charles.....						21.4	50	1.65	6	20	4	7	
St. Paul.....	30.06	30.55	25	29.41	29-30	23.5	57	.94	10	17	5	9	
St. Vincent.....													
La Crosse, Wis.....	30.08	30.58	1	29.41	31	26.9	61	2.58	10	15	8	8	1
Mean.....	30.075	30.554		29.464		21.3	64	1.63	9.3	14.5	8.1	8.5	

STATE SUMMARY FOR MARCH, 1891.—Atmospheric pressure (in inches) monthly mean., 30.08; maximum observed, 30.67, at Moorhead, on the 24th; minimum observed, 29.41, at St. Paul, on the 29th and 30th; range for state, 1.26.

Temperature (deg. F.)—Monthly mean., 21.3; lowest monthly mean., 13.7, at Moorhead; highest monthly mean., 25.0, at Minneapolis. Maximum, 58, at Crookston, on the 28th; minimum, 40, at Pokegama Falls, on the 1st; range for state, .98; greatest local monthly range, 89, at Pokegama Falls; least local monthly range, 50, at Duluth and St. Charles; greatest daily range, 41, at Moorhead; on the 14th; least daily range, 2, at St. Paul, on the 8th.

Precipitation (in inches)—Average for state, 1.63: greatest, 3.50, at Farmington; least, 0.49; at Crookston.

Wind—Prevailing direction, NE.; maximum velocity, 38 miles an hour, from the SW., on the 15th, at Red Wing. Other gales occurred in the state, on the 29th and 30th.

Thunderstorms occurred at Alma City, Grand Meadow, Mankato, Red Wing, Rolling Green and St. Charles.

## DISTRIBUTION AND MORTALITY, FROM THE MORE IMPORTANT DISEASES IN MINNESOTA, DURING THE MONTHS OF MARCH AND APRIL, 1891. (Corrected from the returns for those months, up to May 20.)

NOTE.—The population is stated in the terms of the United States Census of 1890 State, 1,301,826. *First class*, (over 100,000) St. Paul and Minneapolis, 297,894. *Second class*, (between 15,000 and 50,000) Duluth and Winona. *Third class*, (between 5,000 and 15,000) Stillwater, Mankato, St. Cloud, Faribault, Red Wing, Rochester) 41,732. *Fourth class*, 2,030 to 5,000, returns not yet at hand. *Fifth class*, villages and townships under 2,000, returns not yet received.

*State:* Total deaths in *March*, (from over 800 separate returns of deaths,) 1,123, larger than the month's average for 1888-90. The largest increase was from diseases of respiratory organs.

In the "first class" with 22.88% of the population in the state, the deaths (484) were 43.3% of the total mortality.

In the "second class" with 3.96% of the population in the state, the deaths (71) were 6.32% of the total mortality.

In the "third class" with 3.42% of the population in the state, the deaths (30) were 2.67% of the total mortality.

*Measles*—Eight deaths, in 5 localities and 5 counties; decreasing.

*Scarlatina*—Eight deaths, in 8 localities and 7 counties; decreasing.

*Diphtheria*—Forty-six deaths, in 20 localities and 17 counties; decreasing.

*Croup*—Twenty-two deaths, in 17 localities and 15 counties; increasing.

*Enteric fever*—Twenty deaths, in 8 localities and 8 counties; decreasing.

*Tuberculosis*—(*Phthisis pulmon*, 18; other forms, 16) 117 deaths, in 63 localities and 43 counties; an increase, and the widest distribution of any disease.

*Bronchitis*—Fifty-five deaths, in 14 localities and 16 counties; increasing.

*Pneumonia*—One hundred and forty-seven deaths, in 50 localities and 34 counties, a very large increase; a larger mortality than for any March of which we have record. Steady increase since December, 1890.

*State:* Total deaths in *April*—744, reported up to date, (based on over 500 separate returns of deaths.) The total, if as complete as for March, would be a little below of the average of this month for the last three years.

*Measles* caused 15 deaths; double that of last month and increasing.

*Scarlatina* caused 11 deaths; a slight increase.

*Diphtheria* caused 29 deaths; a decided decrease.

*Croup* caused 5 deaths; not one-third the average April mortality for 3 years.

*Enteric fever* caused 14 deaths; a steady decline.

*Tuberculosis* caused 114 deaths; about as last month, but less than the April average of three years.

*Bronchitis* caused 45 deaths; a decided reduction.

*Pneumonia* caused 68 deaths; less than half mortality of March and less than the average of three preceding months, or of April for 1888-90.

**MAY INSPECTION REPORT FOR 1891**—The unseasonable weather of the spring, so far, increased the importance of this duty, because the average ability of a population to resist the attacks of disease is in proportion to the purity and abundance of its water, air, and food, supplies. These depend directly, and constantly, on the cleanliness of the house and lot, for residence or business, and they, in turn, largely on the official efficiency of the Board of Health. It is impossible to print, in full, all the reports sent in, but abstracts, of common interest, will be published.

**S**MALL-POX AND VARIOLOID—Recent correspondence leaves the impression that some of our Health Officers share the popular belief that varioloid is a bastard small-pox, somewhat dangerous, but nothing like the genuine kind. When a person who had small-pox in early years takes it again, or when one who was vaccinated in childhood “catches” small-pox afterwards, the disease is much modified, milder, gets well more rapidly, with few pustules, less severity, and the chance of death is much less than from the unmitigated disease. *These forms of small-pox are what we know as varioloid, a milder small-pox, and so less dangerous to the sick one, but no less capable of giving the unmitigated disease to one who never had it before, and is unprotected by vaccination and re-vaccination.*

---

**P**URE VACCINE LYMPH—There has always been a constant call upon the State Board of Health for lymph of a quality which it could endorse as reliable and active. The Board has never given any such endorsement, but has always referred purchasers to the most reliable producers, so far as the experience of its members enabled them to judge. We have already given some of the reasons why the practice of vaccination has fallen into disuse, but here the object is to state what the Board is doing to secure a vaccine which, obtained from the best source, and cultivated on young healthy calves with every precaution, and collected with every care, can be recommended for use. The Secretary visited every important station for the production of vaccine in Europe, a year ago, and studied the subject under the kind direction of the men who have made it a life work and devoted to it, under the most favorable circumstances, talents of a very high order. All of them are constantly using the vaccine they produce, every day, in vaccinating and revaccinating, children and adults. In this way they are as constantly observing its operation, studying its effects, and watching under a heavy sense of personal responsibility, for any failure to be just what it ought to be. With these gentlemen an American Health Officer, familiar with the subject at home, has every opportunity to study it in all its phases. This the Secretary did, and after going over the field, gave most time and attention to the production of calf, and humanized lymph, in England, where, under the direction of Local Government Board, both are provided for public gratuitous distribution. The station is in London, under the skilfull personal supervision of Dr. Robert Cory. More than six weeks were devoted to a practical study of every branch of the work with the kind and helpful guidance of Dr. Cory and his assistants, Dr. Collins and Mr. Stott. Having obtained some knowledge of the methods of production, selection and preparation of the two forms of the virus, the Secretary was enabled, by the thoughtful courtesy of Dr. Buchanan, the Medical Officer of the Board, to accompany Dr. F. W. Barry, the Medical Inspector of that district, through Yorkshire, on a tour of inspection, and to see, among other

things, the work of public vaccination in city and rural stations, by a considerable number of public vaccinators. Many hundred children were examined before, during, and at various periods after, the operation. In this way one could judge of the work of every-day vaccination, and its results, under the varying conditions of different operators, different localities, different classes of children, and with humanized and animal virus. The outcome of this study was the belief that nowhere else is the virus better, or operation performed with more care, or a greater average of success.

The use of humanized virus is the rule, each vaccinator maintaining his own supply from healthy infants specially selected for typical history and health, from the abundant material always at hand. It is the custom to use the humanized for regular work, and the calf lymph to begin a new stock when for any reason the humanized fails, or is insufficient. After this abundant trial the calf lymph furnished at the National Vaccine Station, by Dr. Cory, was chosen for the experimental trial here, and was prepared and sent by him. A suitable place was found near Red Wing, and the work of cultivation began. Twenty-one healthy, nursing calves have now been vaccinated successively, with this virus. The sixteenth calf of the series was found typical in every respect, in health, and in the occurrence, and character of the vesicles, and lymph. A careful series of trials, first on adults and then on selected children was made without a failure, or as much as the usual irritation and fever in adults; the infants had scarce any trouble. Satisfied that the lymph, furnished at the Station, was all that could be desired, a free vaccination was offered to the children of the public schools, with parents' permission. Up to date (May 23), more than 650 children have been vaccinated (nearly all) directly from the calf at the Station, by the Secretary, using a needle and making a tiny puncture in four places, on each arm. More than 400 have passed his personal examination, on the day week afterwards, and been given certificates of perfect results. The operation failed, on first attempt, in three cases. Two of these took perfectly in four places, on second attempt, and the third case has not reported for the second trial. In but a single case was the vesicle abnormal on the eighth day, being large, irregular, with yellowish serum, but with no unusual areola, or as much as the usual constitutional impression.

---

**S**EA-BOARD QUARANTINE AND THE OCCURRENCE OF INFECTIOUS DISEASE IN MINNESOTA—Ever since the first epidemic of small-pox, which was in full blast in 1872, when the State Board was organized, experience has taught us that our most frequent attacks came with immigrants. In the fall of 1888 the Secretary (at the time President of the American Public Health Association) visited Canada and called the attention of the Government to the defective organization of the St. Lawrence Quarantine Service, as respected the introduction of infectious diseases by immigrants. To enforce his argument he suggested a very likely way in which it might be, even then, occurring. This was in August, and on September 3d, following, a woman, directly from Norway, coming on Allen line of steamers, through the St. Lawrence Quarantine and Quebec, to the Township of Wang, in Renville county, was attacked by small-pox. The following correspondence bears so directly on *what is still our greatest danger*—that it is reprinted here.

The first letter from Dr. Hewitt to Hon. J. Lowe, Deputy Minister of Agriculture in charge of Canadian Quarantine, November 7, 1888:

"Sir: When I had the honor of a conversation with you in August (with Dr. John Coventry, medical health officer of Windsor) I did not think that an illustration of the subject we were discussing would so soon occur. But the correspondence which Dr. Montizambert, your quarantine officer at Grosse Isle, has submitted to you, shows that what we thought *might* happen was at the very time happening. A woman infected with small-pox passed inspection at Rimouski, landed at Quebec on August 24, came to a remote township in Minnesota, sickened about September 2, exposed about forty other people before the disease was recognized, and to date there have been seven (7) cases and three (3) deaths, including the woman herself, among the sick. I venture to hope that your officers will be able to get the *locality, character and date* of the infection of this case, bearing so directly on the question of the precaution which should be taken before permitting persons or things to enter ships for this side, without a clear history of freedom from the infection of a disease whose incubation is long enough to enable the victim to get to the remotest locality in Canada or the United States before the disease declare itself. It is rare that so clear an illustration occurs of the necessity for more stringent regulations at *foreign ports*, to protect the population of this side the Atlantic. The possibility that such importation may be, as in this case, into districts not on the lookout, or prepared for the attack, is a very serious feature of the danger, because infection may spread widely from such an outbreak before its very existence is discovered.

I should have sent the correspondence directly to you, but I had forgotten for the moment that your quarantine system is not a unit, under one head—a quarantine officer, responsible to the minister for the unity and efficiency of the whole service—and wrote to Dr. Montizambert under the impression that all immigrant inspection on the St. Lawrence was done by him.

May the importance of the matter be a sufficient excuse for my venturing to trouble you, and may I express the hope that this investigation and a renewed study of the best methods of preventing or controlling epidemic disease at the sea coast may result in giving to Canada the best system on the continent."

To which he kindly and promptly replied as follows:

"Sir: I have to acknowledge your letter of the 7th instant, on the subject of the St. Lawrence quarantine regulations, and, in reply, to inform you that the representations in your letter will receive careful consideration, with a view to prevent the recurrence of a case such as that which you describe."

Later Mr. Lowe stated that the Allen Line were unable to trace the passenger, and requested positive information which was forwarded in the form of a statement by the agent who sold the ticket and gave the name, number and date of arrival on the steamer "*Parisian*" at Quebec, Aug. 24 1888. To this no reply was made, but re-organization of the St. Lawrence Quarantine, so as to put it under a responsible medical head, soon after occurred, which, to some extent, reduces the danger complained of.

What we have always needed was a list of immigrant arrivals at the seaboard, coming to Minnesota, with all possible information as to their exposure to infectious disease. To that end a note was sent to Mr. Lowe through Dr. Montizambert, in charge of Canadian Quarantine, to which a capital reply was made, stating the additional expense for clerical service, and suggesting the manifest room for improvement in this direction, in our seaboard quarantine service. Remembering that congress had recently legislated for the better regulation of immigration, and knowing the Marine Hos-

pital Service represented the general government in the quarantine of New York, the Secretary wrote to Dr. Hamilton, its supervising surgeon general, as follows, April 7, 1881:

"Our greatest danger from small-pox is through immigrants and their clothing. I write to ask you if it is possible and practicable, through your Service in New York harbor, to furnish us with a list of immigrants and their destination in our state, who come from infected, or suspected, localities or ships.

With our complete system of Local Boards of Health this information would make us masters of the situation. What could the agents (immigrant) of the Steamship companies and Railroad companies do? I hope an arrangement is possible, as it ought to be, with your improved facilities of knowing the facts of infection abroad."

No reply having been received on May 4, a request was again made:

May 7, 1891.

"April 7th I wrote, asking what co-operation this Board could have from your Service in New York harbor, in the matter of persons and baggage coming here, from infected places or ships, into New York. May I ask a reply?

To which we received the following reply:

WASHINGTON, May 11, 1891.

"SIR:—In reply to your letter of May 4th, I have to inform you that your letter of April 7th, relative to co-operation in the matter of persons and baggage coming from infected places or ships, via New York, was referred to the Honorable, the Secretary of the Treasury, April 13th, together with a report relative to the carrying out of the immigration act passed by the last Congress.

Owing to certain legal questions the details of management under the new act have not been perfected; but at the present time, after examination by the quarantine officer at New York, the immigrants are again examined by a medical officer of this Service, with a view to detention of any afflicted with a contagious disease.

I have recommended that the Superintendent of Immigration should make not only a weekly report of the destination of immigrants, for publication in the Abstract, but also special reports conveying all the items of information desired, and these reports will, doubtless, soon be made.

At present, however, all these matters are under consideration by Assistant Secretary Nettleton, who is formulating a definite plan of management for use until the meeting of Congress, and the Bureau is unable to give you a specific answer at this time. I have expected every day to receive orders to make a statement in relation to these matters, but their settlement is still in abeyance."

An important question has thus been raised by our request, and the difficulties Dr. Hamilton refers to are, not wholly, caused by the unsettled relations between the Quarantine Service of the State of New York, and the M. H. Service representing the Treasury Department of the General Government. How long that chronic misunderstanding is to prevent so simple and important advance as we ask for, all inland Boards of Health will be glad to know. The subject is important enough to justify this contribution to its history.

#### *MAY INSPECTION REPORT, 1891.*

The first to arrive is from New Ulm, May 1st, Dr. C. Weschke, H. O.: population 3,741. Thorough inspection of city, including colleges, etc., and find everything in good order. Public health for the last two years, good: Scarlatina, five cases, isolated and recovered; two cases diphtheria, isolated; one fatal."

WHEATON, (V.) D. B. NEWMAN, M. D., H. O. "The usual cleaning up done without the usual pushing. Water supplies as at last report. No epidemic, nor other infectious disease, than a single case of measles, imported from Minneapolis, but detected before other exposures occurred."

*DISEASES OF DOMESTIC ANIMALS.*

**G**LANDERS—A smaller prevalence than at any time since the passage of the law, under which the State and Local Boards of Health have been so successful (1885). The greatest, present, danger is the sending of glandered animals from the cities to the farming districts, for sale or exchange. A flagrant instance of this practice occurred in St. Paul during this month. As nearly as now known, the disease appeared in a livery stable, and several horses were badly affected before alarm was given. Then the apparently affected animals were killed and the suspected sent into country districts around Northfield (where one was killed as glandered), Faribault, Owatonna, and other places. As soon as informed of the escape from St. Paul, a competent veterinary surgeon was put on their track; every township, village and city, likely to be visited, was notified and given a description of the animals and attendants. The effect was good, and the temptation to repeat the experiment is very small.

Glanders is only to be suppressed by constant vigilance on the part of Local Boards of Health and of horse owners, who must co-operate for the best results.

**R**ABIES IN THE COW AND DOG—Within a few months several cases of supposed rabies of this sort have been reported and inquired into. That from the cow was disproved by the examination of the brain, and by the absence of other evidence. Two outbreaks were believed to have begun with dogs, and given by them to children and adults. The heads of the offending dogs were sent to the Secretary, who injected preparations of their brains into the brains of rabbits, by Pasteur's method. In one case the rabbit is alive and hearty; in the other it died nearly a month after the operation of another affection. There is so much misapprehension on the subject of rabies, and with it needless alarm, that the matter is again discussed in an article in this number, to which, all interested, are referred, as also to pages 15, 18, 44, 48, Vol. VI. of this journal.

**H**OW TO PREVENT RABIES—The fact that there have been reported within a few months three separate outbreaks of supposed rabies in Minnesota justifies a statement of the probable origin of such outbreaks. The disease, in any locality, almost invariably, is brought in by ownerless dogs, who will be found in any community where there are no local regulations as to their ownership. This much is settled by common experience the world over. These dogs are the ones responsible, usually, for sheep killing and cattle-haiting, and for the demoralization of the dogs of the district. There is, therefore, every reason for the action of the Local Board of Health to prevent a fatal disease of men and domestic animals, by an order that all dogs owned in the district be properly marked. The simplest method is registration with the town clerk, and the wearing of a numbered collar. This order once complied with, for which a reasonable time should be allowed, all dogs found away from owners, and without the evidence of ownership ordered, should be held a specified time, and if not claimed or adopted by one who will assume ownership, should be killed. All cities, and well ordered villages have similar regulations now, why not townships as well?

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INFECTIOUS DISEASES REPORTED DURING THE MONTHS OF APRIL AND MAY, 1891.

## DISEASES OF MEN.

	APRIL.	MAY.
Diphtheria .....	cases, 72 deaths, 39	cases, 60 deaths, 22
Scarlatina.....	cases, 34 deaths, 3	cases, 20 deaths, 0

## DISEASES OF ANIMALS.

	APRIL 1.	MAY 1.
Cases of glanders remaining isolated or not accounted for.....	13	13
Reported during the month .....	3	17
Killed      "      "	2	9
Released    "      "	0	0
Died       "      "	1	1

Remaining, April 1, isolated, or not accounted for, ..... \* 12 \* 20

\* Note.—Most of these are cases exposed to possible infection, and isolated for further observation.

## MINNESOTA WEATHER SERVICE.—REPORT FOR APRIL AND MAY, 1891.

Furnished by Corp. John Healy, Observer, Signal Service, in charge.

STATIONS.	ATMOSPHERIC PRESSURE.				TEMP. OF AIR.	No. of rainy days... inch or more...	No. of cloudy days... No. of fair days...	No. of clear days...	No. of hail storms...	No. of thunder storms...						
	EXTREME.															
	Mean reduced barometer...	Highest barometer...	Lowest barometer...	Date.....												
Alma City.....	{ Ap'l 29.99	30.44	4	29.56	29	47.7	66	1.64	10	8	3					
	{ May					57.3	58	.86	6	2	1					
Crookston.....	{ Ap'l	30.45	4	29.35	29	47.4	83	1.29	2	12	2					
Duluth.....	{ Ap'l	30.00	30.47	4	29.35	29	38.0	70	1.71	9	11	1				
	{ May	30.08	30.62	5	29.59	9	48.6	60	2.28	6	11	14				
Faribault.....	{ Ap'l					47.8	82	1.60	4							
	{ May					57.8	60	1.50								
Farmington.....	{ Ap'l					48.2	62	1.70	7	8	11					
	{ May					57.9	52	2.00	2	4	13					
Grand Meadow....	{ Ap'l					47.3	67	1.59	7	9	11					
	{ May					52.8	56	1.33	5	5	10					
Kinbrae.....	{ Ap'l								7	19	2					
	{ May															
Lake Winnibigos- hish.....	{ Ap'l					43.6	75	1.32	7	8	9					
	{ May					53.0	58	1.49	6	6	12					
Leech Lake.....	{ Ap'l					43.4	83	0.94	9	10	7					
	{ May					53.2	74	1.13	5	7	13					
Mankato.....	{ Ap'l	30.00	30.45	4	29.58	29	49.5	66	2.32	9	10	7				
	{ May	30.11	30.61	5	29.68	19	58.8	55	1.28	5	6	13				
* Minneapolis.....	{ Ap'l					49.5	68	2.42	8	8	14					
	{ May					58.6	56	1.27	5	2	14					
Moorhead.....	{ Ap'l	29.95	30.50	3	29.53	17	47.0	80	1.91	11	7	17				
	{ May	30.01	30.63	5	29.52	8	54.2	69	1.03	7	3	10				
Montevideo.....	{ Ap'l					50.4	76	1.50	5		1					
	{ May					57.5	63	1.98	4		2					
Morris.....	{ Ap'l					47.0	75	1.55	7	6	13					
	{ May					57.8	65	1.84			3					
Northfield.....	{ Ap'l					48.2	65	1.90	5	9	9					
	{ May					57.4	58	1.60	3	2	12					
Pine River Dam...	{ Ap'l					43.8	82	1.85	6	11	5					
	{ May					54.5	57	.89	4	8	18					
Pokegama Falls...	{ Ap'l					50.8	68	.59	4							
	{ May					49.5	63	2.25	10	5	12					
Red Wing.....	{ Ap'l	29.97	30.45	4	29.42	29	58.4	53	1.46	6	3	12				
	{ May	30.07	30.61	5	29.62	19	47.3	58	1.62	7	12	11				
Rolling Green.....	{ Ap'l					56.3	62	2.70	6	7	2					
	{ May					48.7	66	8.40	6	12	4					
St. Charles.....	{ Ap'l					54.6	47	1.67	4	10	9					
	{ May					29	43.2	70	1.71	9	11	13				
St. Paul.....	{ Ap'l	29.97	30.46	4	29.37	29	57.7	55	1.33	7	7	11				
	{ May	30.07	30.61	5	29.60	19										
St. Vincent.....	{ Ap'l															
	{ May															
Lt Crossc, Wis....	{ Ap'l	30.01	30.42	4	29.58	29	49.0	62	2.14	9	10	10				
	{ May	30.11	30.59	5	29.73	19	58.4	51	.69	5	4	13				
Mean.....	{ Ap'l	29.984	30.456		29.489		47.1	71.2	1.83	7.6	9.1	8.6				
	{ May	30.07	30.61		29.62		55.9	58.8	1.52	5	5	15				

STATE SUMMARY FOR APRIL, 1891.—Atmospheric pressure (in inches), monthly mean., 29.98; maximum observed, 30.50, at Moorhead, on the 3rd; minimum observed, 29.35, at Duluth, on the 29th; range for the State, 1.15.

TEMPERATURE—(Deg. F.) monthly mean., 47.1; highest monthly mean., 50.4, at Montevideo, lowest monthly mean, 38.0 at Duluth; maximum, 90, at Montevideo, on the 29th; minimum, zero, at Leech Lake and Pine River Dam, on the 4th; range for State, 90; greatest local monthly

range, 83, at Crookston and Leech Lake, least local monthly range, 62, at Farmington; greatest daily range, 51, at Moorhead, on the 28th; least daily range, 2, at Duluth on the 14th.

**PRECIPITATION**—(in inches), average for State, 1.83; greatest, 3.40, at St. Charles; least, 0.91, at Leech Lake.

**WIND**—Prevailing direction, NW.; maximum velocity, 45 miles an hour, from the East, at Moorhead on the 8th; other gales reported throughout the State, on the 26th, 27th and 29th.

**REMARKS**—The month was warmer than the average, about 4 degrees, and the precipitation was about normal.

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STATE SUMMARY FOR MAY, 1891.—Atmospheric pressure (in inches), monthly mean., 30.07; maximum observed, 30.63, at Moorhead, on the 5th; minimum observed, 29.52, at Moorhead, on the 8th; range for State, 1.11.

**TEMPERATURE**—(Deg. F.), monthly mean., 55.9; highest monthly mean., 58.8, at Mankato and Minneapolis; lowest monthly mean., 48.6, at Duluth; maximum, 91, at Crookston, on the 7th; minimum, 15, at Leech Lake, on the 5th, and at Pokegama Falls, on the 6th; range for 79; greatest local monthly range, 75, at Crookston; least local monthly range, 47, at St. Charles; greatest daily range, 47, at Moorhead, on the 14th; least daily range, 4, at Duluth, on the 18th.

**PRECIPITATION**—(in inches), average for the State, 1.52; greatest, 2.90, at Crookston; least, 0.59, at Pokegama Falls.

**WIND**—Prevailing direction, south; maximum velocity, 36 miles an hour from the SE., at Moorhead on the 23d; other gales reported throughout the State on the 9th, 10th and 11th.

**REMARKS**—The temperature was slightly in excess. The rainfall was much less than normal throughout the State, the average deficiency being nearly two inches for all districts.

## DISTRIBUTION AND MORTALITY of the More Important Diseases in Minnesota, during the month of May, 1891.

(Corrected from the returns for those months, up to June 20.)

**NOTE:**—The population is stated in the terms of the United States Census of 1890. *State*, 1,301,826. *First class*, (over 100,000) St. Paul and Minneapolis, 297,894. *Second class*, (between 15,000 and 50,000) Duluth and Winona. *Third class*, (between 5,000 and 15,000) Stillwater, Mankato, St. Cloud, Faribault, Red Wing, Rochester 44,732. *Fourth class*, 2,000 to 5,000, returns not yet at hand. *Fifth class*, villages and townships under 2,000, returns not yet received.

**State:** Total deaths in May (reported up to June 20) 732, about the average of the month for the last four years.

In the "first class," with 22.88% of the population, the deaths were 356, or 48.7% of total mortality.

In the "second class," with 3.96% of the population, the mortality (77) was 10.52% of total mortality.

In the "third class," the mortality (44) was 6.0% of total deaths.

**Measles**, 15 deaths, (7 males, 8 females) 8 localities in 6 counties, same as last month, and one-half the average, for the same month for the last four years.

**Scarlatina**, 10 deaths (3 males, 7 females) in 6 localities and 6 counties, about the same as last month, and less than one-half the average of May for the last four years.

**Diphtheria**, 31 deaths (15 males; 16 females) in 11 localities and 11 counties, 25% less than the May average since 1887.

**Croup**, 5 deaths (1 male, 4 females) in 4 localities and as many counties, and but one one-half of the average of this month for four years.

**Enteric Fever**, 10 deaths (2 males, 8 females) in four localities and 4 counties; less than last month, and not 75% of the May average since 1887.

**Tuberculosis**, 102 cases (49 males, 53 females) in 31 localities and 25 counties and 25% less than the average of this month for four years.

*Bronchitis*, 14 deaths (4 males, 10 females) in 9 localities and 8 counties. It was 32% of the average of same month since 1887. Max. in 1888, min. in 1891.

*Pneumonia*, 57 deaths (33 males, 24 females) in 19 localities and counties, and 21% less than the average of the same month for four years. Max. in 1888, 120 deaths; min. in 1889, 55 deaths.

#### DISEASES OF DOMESTIC ANIMALS.

**R**ABIES IN DOMESTIC ANIMALS AND IN MAN.—Boards of Health deal with Rabies as with any other infectious disease of men and animals under Chapter 132, Laws of 1883, and Chapter 200, Laws 1885, and will promptly notify the Secretary of the State Board of the history of such cases and their action as provided in Section 18, of the first named law and Section 12 of the last.

Distribute this circular freely when there is excitement on the subject, and promptly test every suspected animal by confinement as suggested, or, when killed, by sending the head as directed, or the brain carefully removed and sealed in a suitable jar of pure glycerine, to the Secretary for the Pasteur test.

**WHAT IS IT?** An infectious, and fatal disease of the nervous system. Its specific poison is communicated by the bite of an animal having the disease and so by inoculation under the skin. The virus does not operate through the unbroken skin, nor by way of the digestive canal.

**WHERE DOES IT COME FROM?** In our State all reported outbreaks have been associated with the appearance of a strange, and angry dog, with a single exception when a cat was reported to be the biter. In other countries the wolf and fox have been blamed.

**HOW TO PREVENT THE DISEASE.** This can be done, surely, in the following way. Compel the owners of dogs to register them and provide them with evidence of the fact by a collar and tag. In the presence of affected or suspected animals, require all dogs running on the highway, to be muzzled, and tagged, on penalty of pound and fine, or slaughter on sight.

**A DOG IS FOUND RUNNING AT LARGE, ACTING STRANGELY, OWNERLESS, AND SUSPECTED OF RABIES, WHAT SHALL BE DONE WITH HIM?**

If possible catch and confine him in a quiet, roomy, and comfortable place where he can be watched, fed and kindly treated till a few days' time develop the character of his disease, if he have any.

**WHY DO THIS RATHER THAN KILL HIM ON THE SPOT?** For very important reasons. The probabilities are altogether against his having Rabies.

If he have the disease, under the circumstances of his capture, a few days will tell the story.

If a person has been bitten by him this is the way to get an answer to the question, Was the dog mad when he bit?

If the suspected animal recover his health and spirits he was not rabid.

If he seem to recover and after a week give evidence of the disease, the person bitten before his arrest is safe. The animal may then be killed and his brain used for the further test described below.

Saving, caring for, and watching a suspected dog will, in the majority of

cases, prove the character of the outbreak of disease with which he is charged, and in a few days. Kill him and there is no way left to quiet the popular excitement which usually accompanies the suspicion of this dreaded disease,

*But suppose, as is unfortunately the rule at present, that the suspected dog has been killed, what then?*

Cut off his head and send it (packed in ice if the weather be warm) by express, charges paid, to Dr. Hewitt, Red Wing, for the Pasteur test, with a detailed description of the case and of the outbreak associated with it,

*A person has been bitten by an animal suspected to be rabid, what must he do?*

Suck the wound instantly and thoroughly; if on an extremity bind a handkerchief or other band snugly around the limb between the wound and the heart, so as to encourage free bleeding. Cleanse the wound with simple hot water or a saturated solution in hot water of Boracic Acid, which also promote bleeding, and dress with frequent renewals of the same, or a saturated solution of Boracic Acid in glycerine.

The experience of Pasteur and his aids, with a practice vastly greater than anyone else with Rabies, is that the use of strong caustics, and of the red-hot iron, is of no benefit but rather an injury.

The wound once thoroughly cleansed as directed above, should be permitted to heal.

Persons who have been bitten by suspected animals should understand that not more than 16 per cent. of persons bitten by dogs, ACTUALLY RABID, take the disease, and that, despite the number of outbreaks reported in our State, there is no positive evidence that the disease, in any case was Rabies. Some of the reports, and that by physicians too, state that children supposed to be affected, bark and imitate dogs in other ways. Attention is called to the descriptions of the symptoms of true Rabies in dogs, cattle, and men, which follow, and the hearty co-operation of all intelligent folk is asked to give this circular as wide distribution as possible, that the gross popular misapprehension as to this dreaded disease may be replaced by a reasonable comprehension of the facts.

The following description of the symptoms of Rabies in the dog we translate from "La Rage," by Dr. Jean Renaud Suzor, Paris, 1887, a pupil of Pasteur's.

"There are two forms of Rabies in the dog; the furious type, in which the animal is delirious and disposed to bite; the mute or paralytic form, in which the dog is silent and paralysed.

I. Rabies furious. (a) The character of the animal is changed, his behavior is different, he becomes sad and silent, hides himself in dark places, away from noise and tries to sleep, but his sleep is troubled by painful dreams, he starts up, takes a turn, shakes himself and lies down again. He is in a state of constant agitation, or perhaps, in certain rare instances, he is dull, and careless to everything around him, and if one stirs him up he growls but shows no inclination to move. In either case he still obeys the voice of his master, and shows no inclination to bite. Then his restlessness increases, and if he is in his kennel he piles up the straw of his bedding and buries his chest in it, but finding no relief, he tears it down and scatters it about in rage. In the

house he tears the cushions and carpets. In certain cases he exhibits a very lively and inexplicable attachment to another animal or to some persons in the house; at other times he is found licking cold objects. He has visions and hallucinations, he growls, barks, and throws himself on imaginary beings which he seeks to destroy. If you hold a stick towards him he bites it, and without much provocation, he bites strangers. All this time he knows his master but his saliva is already virulent and his caresses are to be avoided. The saliva is virulent at least eight days before the symptoms of the disease are well marked.

(b) A rabid dog has no dread of water (hydrophobia) but on the contrary, at all stages of the disease, he drinks with avidity, or attempts to do so. When he fails to drink it is from an involuntary contraction of the throat which prevents the act. His appetite may be temporarily increased, but is soon totally lost and replaced by a perversion of taste which drives him to spurn his accustomed food, though he throws himself with voracity upon the most incongruous things. So he destroys and attempts to eat bits of wood, straw, his own excrement, his urine, dirt; they are equally acceptable. At this stage he vomits frequently, and the matters rejected are often tinged with blood, due often to the habit of swallowing things which lacerate the walls of the stomach.

(c) The bark of the rabid dog is characteristic and never forgotten when once heard. Boulay describes it as follows: It is remarkably modified in its sound and its method. Instead of bursting out with normal clearness and consisting in a succession of barks of equal duration and intensity, it is hoarse, subdued, with a lower tone with the first bark given full-mouthed, and followed immediately by five, six or eight howls which come from the bottom of the throat, and during the emission of which the jaws are but partially closed instead of closing each time as in the normal bark. Youatt describes this peculiar bark nearly in the same terms.

(d) The sight of another dog rarely fails to provoke a furious outbreak in a rabid dog, which constitutes a sure and valuable test of the existence of the disease. The effect is the same in all rabid animals and includes even the peaceful sheep. Man is the only susceptible being who is an exception to this rule. This symptom of fury at the sight of another dog has a peculiar value when one is dealing with an animal which has always exhibited a character gentle and inoffensive.

(e.) In well established rabies the sexual instincts are strongly excited. In some cases the animal remains gentle and affectionate to the end, but as a general rule there soon appears a state of delirious fury the interpretation of which is only too easy. He bites and tears everything thrown in his way if shut up or chained, and if at liberty, attacks every animal he meets, and soon, man himself. Still he attacks strangers before his master, and animals rather than men. His pupils are dilated and his whole bearing expresses the highest degree of ferocity and cruelty. A rabid dog is silent when tearing his victim, differing in that respect from the healthy one who growls and makes a great hubbub all the time he is fighting. At some period of the disease the dog often leaves his home and wanders away. At a distance he exhibits no peculiarity which would reveal his condition, he keeps his accustomed gait, his tail

is erect swinging from side to side as is customary, and does not hang down or between his legs as is so often said. Later on when he is tired his step becomes unsteady and languid, the head hangs low, and the pointed and bloody tongue lolls out of the mouth, the tail hangs listlessly, the sight is failing with the other senses, the animal is less dangerous, but he is not to be trusted; his saliva is more virulent than ever, he can still bite, he is found sometimes, at this stage, lying in ditches alongside roads. After wandering in this way for many hours, even days, he often returns home, where he awakens a pity on the part of persons who ignorant of his condition and without distrust are eager to welcome, to caress and to feed him. About the fifth day, emaciated, exhausted, though more by repeated outbreaks of fury than by lack of food, already paralyzed in the hind-quarters, he surrenders at last, to exhaustion and to paralytic asphyxia.

MUTE, OR PARALYTIC, RABIES IS A VARIETY OF THE DISEASE. The periods (a) (d) (e) are the same as in the furious type, though less accentuated. Then as to the periods (d) (e) the voice is entirely lost; from the very first he can only howl, without a trace of a bark. The lower jaw is paralyzed, and the mouth constantly open, the eyes are wide open, without expression, and always fixed in the same direction. The most marked symptoms are muscular debility, and loss of nervous power. The animal keeps his bed and sleeps at times. He shows no inclination to bite, and if he did has not the power. The saliva is just as virulent as that of the victim of furious Rabies.

In the great majority of cases Rabies in either form, is fatal to dogs; but there are authentic instances both of recovery without, and with treatment which are, of course, the rare exception.

POST-MORTEM APPEARANCES AFTER DEATH BY RABIES. The tongue and mucous membrane of the mouth and stomach are blue and almost black. In the cavity of the stomach are found, often, a black fluid like coffee grounds, and a strange collection of things which no healthy dog swallows; wool, hair, straw, pieces of wood, coal cinders, soil fragments of linen, carpet, etc. Youatt and others found this symptom in all their cases, Brückmüller of Vienna in 54 per cent.

WHAT IS THE PERIOD OF INCUBATION OF RABIES IN DOGS? Less than two months in 80 per cent. of cases, rarely passing six months.

RABIES IN THE CAT. As this has been reported in Minnesota it is worth notice that the symptoms are the same as in the dog; and it is to be remembered that the cat, like the wolf, is most likely to attack the victim on the face and the head. All statistics agree in classing wounds of these regions as the most dangerous of all.

THE SYMPTOMS OF RABIES IN MAN should be well understood by physicians so as to be able to judge of a suspected case, and to relieve the mental worry and excitement so likely to accompany a suspicion of the disease. The following is from the same authority as supplied the vivid description of the disease in dogs:

"In man Rabies assumes the two forms already described, but the delirious and convulsive variety is the most common.

The established convulsive type naturally divides itself into three periods. In the first that of melancholia, which follows just after the period of incubation, the sick one, whether aware or not, of his danger, whether infant or adult, changes his character, becomes sad, taciturn, and avoids all society; he is besieged by sombre forebodings, has a constant and intense headache, and his sleep is disturbed by startling dreams. In some cases there is itching, or even painful sensations at the seat of the wound. This primary stage of the

disease is sometimes wanting, and in any case does not last more than four or five days. It is in this stage that the patient oftentimes manifests an irresistible desire to walk or run; there is a general exaltation of muscular and nervous excitability replacing for the time the melancholy.

In the second stage, which is the one truly characteristic of the disease, a condition of general over excitement appears, the respiration becomes difficult, painful, the inspiration is cut up into frequent sighs. Little by little all the spinal nerves are affected, and there occur spasmodic contractions of the special muscles of the pharynx and larynx. There is increased activity of all the senses; noise—or the sight of water—or any brilliant object, the least current of air, an odor, a sound, however feeble, are often enough to provoke a convulsive spasm threatening asphyxia, and with protrusion of the eyeballs. About the second or third day occurs the frequent symptom of spitting; the mouth at first dry, becomes moist and fills up with mucus and froth. In very many cases the sick one has hallucinations of sight and hearing. The voice is rough, hollow, convulsive, spasmodic, broken, and sometimes recalls the bark or the howl of the dog. During the convulsions the patient often bruises or wounds himself; he still has inclination to run, and to go away from home. These attacks alternate with melancholy and despair. Temperature runs high as in lockjaw, and increases for the first hour after death. It may reach 43 C. (109.4 F.).

In the third period paralysis has reached all the organs, the intelligence is clouded, the patient is exhausted, and surrenders at last when the centres of respiration and circulation are paralyzed."

**THE PERIOD OF INCUBATION IN MAN.** Brouardel's statistics are quoted in France where the diagnosis has been much more exact than in England or in this country." In one series of 170 cases 87 per cent. were rabid in the course of the first three months. In another series of 93 cases 78 per cent. developed the disease within three months. He concludes that Rabies declares itself oftenest within two months after the inoculation; rarely after three months; and with exceeding rarity after six months. Below 20 years of age the mortality is 31 per cent. and over that age it is 62 per cent."

**SEASON OF THE YEAR AS AFFECTING THE OCCURRENCE OF RABIES.** The statistics of l'Institut Pasteur for three years, agree in putting the maximum mortality at the end of winter and the beginning of spring. In July and August the disease decreases, reaching its minimum in September and October, to increase again in February. It will be noted that these results are the exact opposite of the seasons established by popular opinion.

**SYMPTOMS OF RABIES IN RUMINANTS, CATTLE.** Boulay one of the ablest and most observant men of his time summarises the observations made by himself on twenty-seven head of cattle who had Rabies.

"First day. Slight colicky pains, or something very like, as the animal no sooner lies down than he gets up again. The senses are excited, there is very sudden rise in temperature, itching pains at the seat of the bite.

Second day. Less agitation, slight tenesmus; lower temperature of body and at seat of the bite.

Third day. Commencing paraplegia (paralysis of the lower half of the body) strong tenesmus (straining at stool) the discharge from the bowels covered with frothy mucus of a yellowish brown tint, spinal column not sensitive to pressure, and temperature falling. These symptoms are accompanied by bellowing.

Fourth day. Complete paraplegia; violent straining to stool; excrement covered with frothy mucus; foaming at the mouth; bellowing more frequent.

Fifth day. Same symptoms with considerable fall in temperature; bellowing more rare; sense of taste not impaired." Death by paralysis.

**THE PERIOD OF INCUBATION** was in three-fourths of these animals from three to six weeks, and in the remainder it varied between six weeks and three months. One dog bit all the affected animals, and it is not proved that domestic cattle bite each other when rabid. The inoculation with the brains of these cattle produced the disease.

STATE BOARD OF HEALTH OF MINNESOTA.

# GLANDERS.

An Abstract of the Latest Information as to its Causes,  
Prevention and Control.

Prepared by order of the State Board of Health for Public Distribution.  
By the Secretary.

**KEEP AT HAND FOR REFERENCE.**

## Statistics of the Disease in Minnesota from March 1, 1885, to March 1, 1891.

DATE.	Animals Isolated.	Animals Killed.	Animals Released.	Localities Invaded.	Counties Invaded.
March 1, 1885, to October 1, 1885	232	132	99	76	31
October 1, 1885, to October 1, 1886	151	193	58	63	34
October 1, 1886, to October 1, 1887	185	118	67	78	39
October 1, 1887, to October 1, 1888	248	194	54	81	40
October 1, 1888, to October 1, 1889	102	57	45	59	36
October 1, 1889, to October 1, 1890	82	67	15	40	24
October 1, 1890, to March 1, 1891	11	6	2	9	7
	1011	767	340	406	211

1. Glanders and Farcy are the same disease, differing only in location. The common cause of both is a peculiar poison associated with a specific microscopic plant shaped like a little rod and so called a bacillus. During the six years which have passed since the control of diseases of domestic animals became the duty of the State and Local Boards of Health the affection of the nose, and glands under the jaw, popularly classed together as "Glanders," has been the most common variety of the disease, "Farcy" comes next, and cough and disease of the lungs the last. All forms have been chronic in the great majority of cases, the last the most insidious and dangerous of all.

2. The fact that the common cause of these apparently different afflictions operates in so various ways makes the obscure forms of Glanders difficult, even for an experienced Veterinary Surgeon, to discover. This fact is constantly used by unprincipled dealers to explain any suspicious symptoms in horses they offer for sale, and the common use of such terms as "Catarrh," "Nasal Gleet," "only a little cold," "epizootic," and the like should arouse suspicion, and provoke very careful inquiry.

3. In any form Glanders is an infectious disease, communicable to some other animals and to man. Several cases of the last have been recognized in Minnesota, and others have doubtless occurred which passed as "blood poisoning" from unknown cause. The infection is transmitted by direct contact; by means of infected things; and, possibly, by dust in the air. It is, for practical purposes, an incurable disease. It occurs, most frequently, in the crowded quar-

ters of livery, street-railway, and contractors' barns, if not kept in first-rate sanitary condition. A large proportion of the cases of Glanders reported and dealt with by the Local Boards of Health have been bought of traveling horse traders, without warranty, and often without knowing even the name of the seller, so that it has sometimes been difficult for Boards of Health to trace the fraud for lack of definite data. Farmers, teamsters and draymen cannot be too careful in asking the name and responsibility of the seller of such animals, and should insist on a thorough trial before purchase. A sharp bit of work after the operation of a brisk physic, will frequently develop symptoms not before apparent; as it is difficult to keep a glandered horse in "condition" when at work, or to conceal the disease.

#### HOW ARE LOCAL BOARDS OF HEALTH TO DEAL WITH ANIMALS REPORTED TO BE GLANDERED?

4. When possible call a Veterinary Surgeon to be "by them selected," that is, one in whom the Board have confidence and would trust with their own stock. Have him examine the suspected animal and fill Form 2, of the blanks for the purpose, furnished from this office, complying with all the requirements of the blank. The Board will be guided by his written advice, so given, and will serve a copy of the certificate on the Secretary of the State Board, with report of their action.

5. If the certificate reports the case doubtful, the Board will serve Form 1 of the same series of blanks upon the owner or care-taker after filling it properly. Animals isolated after exposure to Glanders, or because they are suspected of having the disease, are left in the care and at the expense of the owner, because they are often fully able to work, and, until the disease is fully recognized, may be permitted to do so on the farm of the owner, provided he contract that the animal shall expose no one but his mate, and that neither shall leave the farm or associate with other animals till the isolation is removed by the Board who ordered it. The owner uses such animals at his own risk. AS SOON AS THE FACT OF THE EXISTENCE OF GLANDERS IS ESTABLISHED BY THE CERTIFICATE OF THE VETERINARY SURGEON SELECTED BY THE BOARD AS ABOVE, THE BOARD ISSUE THE ORDER FOR SLAUGHTER on Form No. 3, which is also for disinfection, and insist on its immediate execution. No appraisal is to be made of glandered animals, nor any compensation allowed except "to the owner, an equitable sum for the killing and burial."

#### BUT SUPPOSE (AS IS OFTEN THE CASE IN COUNTRY DISTRICTS) THAT A RELIABLE VETERINARY SURGEON IS NOT AVAILABLE, WHAT IS A LOCAL BOARD TO DO?

6. Isolate all animals reasonably suspected of the disease, or of having been exposed to it till such time as a competent adviser can be gotten. In most well marked cases of Glanders, in any of its forms, the evidence is so clear that no one familiar with horses can be deceived after a careful examination and trial, as above suggested, and it is not uncommon for owners to ask to have such animals condemned.

7. Remember that the forms most common among work horses are chronic, slow in progress, and that the essential symptoms are local. IN GLANDERS THEY ARE DISCHARGE FROM THE NOSE, WITH INFLAMMATION, THICKENING AND OFTEN ULCERATION OF ITS LINING MEMBRANE, WITH A HARD SWELLING OF THE GLAND UNDER THE LOWER JAW. At first the discharge is glutinous, adhering to the skin and hair around the nostrils, forming soft greasy-feeling crusts of a deep brown color. Later the discharge becomes pus (matter) of a slightly greenish tint which many think very characteristic.

8. The ulcers in the nose are of two kinds; one like chaneres with a raised and hardened base; the other simply a destruction of the lining membrane in patches. You can usually see them on holding the horse's head so that the light shines into the nose, and can distinguish them by touch. They usually begin as little lumps of the size of a pea under the membrane, well defined, and feeling like a fixed shot. In chronic glanders they are usually few and confined to one nostril; their color is yellowish with inflamed edges. They begin with the hard little tumors which slowly soften, break and become little depressions on a hardened base, discharging the matter already described, slowly enlarging, and with no disposition to heal.

9. The poison spreads through the body in the lymphatic system, whose glands impede its movement by stopping the little cell, which growing in them produces the swelling there, particularly under the lower jaw, which gave the popular name "Glanders" to the disease. Under the jaw this swelling always occurs with the affection of the nose, it gets hard and lumpy to the feel, at first movable, but usually attached more or less firmly to the jaw. The ulcers in the nose and the swollen gland are usually present in chronic Glanders and when found enable any horse owner to recognize the disease. When in doubt about such cases a brisk purge and hard work will soon develop the truth, for in the chronic forms of the disease the strength of the animal is seriously affected, and though careful feeding and local treatment of the nose, may disguise the fact, the method suggested will clear up the case and, not unlikely, prove the existence of the lung form of the disease which is the most obscure and dangerous variety of all.

10. FARCY rarely attacks young, well-bred and well-fed horses, or the mule. Its victims are usually the common-bred, or worn-out and old, horses. It is an affection of the glands, and is preceded by some fever and constitutional disturbance. The local affection consists of lumps (enlarged glands) just under the skin where it is thinnest and most sensitive, on the face, the neck, but most commonly inside the limbs. These lumps are often connected by the swollen lymphatic "cords," as they are commonly called, while the swellings are named "Fancy buds." Like the nasal swellings, these "buds" burst and become jagged sores, with raised edges and hard bases, slow to heal, disposed to get bigger, and often with yellowish crusts. When well marked there can be no difficulty in recognizing this variety of the disease.

11. The acute forms of any variety begin with sharp symptoms and go on rapidly to characteristic evidence, and they are usually fatal speedily, (eight to ten days). The chronic forms are often very tedious, lasting for many months. These are the forms which occasionally "seem to get well." Common experience shows that recovery is not proven nor to be relied on, as it frequently happens that animals apparently well give the disease to others, and much valuable stock has been lost in this way.

#### HOW TO PREVENT THE SPREAD OF GLANDERS.

12. First. Boards should induce representative horseowners to unite with them in careful oversight of suspicious animals, and horse traders. These last are too often the cause of introducing the disease and therefore need watching, as do all sale, feed and livery stables, and particularly herds of horses coming in for sale or trade.

13. Second. To isolate animals who, in the opinion of the Local Board, are reasonably suspected of having the disease, or to have been exposed to it, till competent advice can be had, or sufficient time allowed for the owner to call

counsel, or for the disease to show itself. Such isolation should be at the risk and expense of the owner, and with full security for other stock.

**HOW IS GLANDERS, IN EVERY FORM, CONVEYED?**

14. The infection is in the discharges from affected animals. If conveyed in the air it is in the form of dust. The most probable method is by direct contact of the sick with the well, or by the means of buckets, water troughs, blankets, bridles, anything in fact, which can collect, carry or preserve the discharges from the sores. The affection of the lungs is doubly dangerous because usually unsuspected.

**HOW TO DIMINISH THE DANGER OF SUSPECTED CASES, AND TO DISINFECT THINGS AND PLACES AFTER THE KNOWN PRESENCE OF THE DISEASE.**

15. The virus is easily destroyed by dryness, free air, and sunlight. It may be preserved for many days by moisture, darkness, and in water. Boiling water very soon, and hot water (above 160° F.) in a few minutes, are fatal to it. With hot water, therefore, all harness, bits, blankets and other covers, may be surely disinfected. Straw and anything else used as bedding should be burned. Stables and stalls should be washed down with hot quick-lime as whitewash. Use a broom and apply the wash freely. Sprinkle the floors with fresh lime in powder, freely. After a few days whitewash again, sweep clean, burn the rubbish, and the barn is safe. **BUT DO NOT FORGET THAT THOROUGHNESS IS ESSENTIAL TO THE SUCCESS OF DISINFECTION.** Warn all concerned not to handle glandered or suspected horses without great caution, and require all suspicious cases to be isolated till the real disease is known.

See the backs of the forms in use for dealing with Glanders for other details.

16. The law for dealing with Glanders is Chapter 200, Laws 1885. Section first makes it the duty of Boards of Health to isolate all animals having infectious diseases, or which have been exposed to infection. If left in the care of their owners, as is done for animals suspected of Glanders, it is at their risk and expense, and mostly for two reasons: 1st, That if able they may work without danger to other animals. 2d, That the owner may have the benefit of the doubt, and that steady hard work will most surely and quickly develop the disease, if it exist.

17. The selection and pay of the Veterinary Surgeon is left to the Local Board of Health by Section 2 of the Law.

18. No appraisement is permitted for a glandered animal, and no compensation except "an equitable sum, (the rule is \$5.00 for each animal commonly, but that is regulated by the Local Board, whose local authorities pay for it).

19. It is the duty of all Local Boards of Health to keep the Secretary promptly informed of the existence of this, or any other infectious disease, so that the State Board may give any assistance in its power, and protect other localities from infection.

20. This circular will be distributed freely by Health Officers, Chairmen, and any other members of Boards of Health. It and all other information on the subject may be obtained directly by a postal card addressed to

C. N. HEWITT, M. D.,

Secretary State Board of Health,

Red Wing, Minn.

June 10, 1891.

# PUBLIC HEALTH

## IN MINNESOTA.

OFFICIAL PUBLICATION OF THE STATE BOARD OF HEALTH  
AND VITAL STATISTICS,

PUBLISHED MONTHLY AT THE OFFICE OF THE BOARD, RED WING MINN.

CIRCULATION, 3,700 COPIES.—SUBSCRIPTIONS, FIFTY CENTS PER ANNUM.

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### INFECTIOUS DISEASES REPORTED DURING THE MONTHS OF JUNE, JULY AND AUGUST, 1891.

#### DISEASES OF MEN.

	JUNE.	JULY.	AUGUST.
Diphtheria .....	{ cases, 60 { deaths, 12	{ cases, 50 { deaths, 10	{ cases, 20 { deaths, 7
Scarlatina .....	{ cases, 66 { deaths, 12	{ cases, 18 { deaths, 1	{ cases, 42 { deaths, 1

#### DISEASES OF ANIMALS.

	JUNE 1.	JULY 1.	AUGUST 1.
Cases of glanders remaining isolated or not accounted for.....	18	37	51
Reported during the month.....	27	37	6
Killed     "     " .....	7	21	4
Died     "     " .....	1	0	0
Released     "     " .....	0	2	0

Remaining isolated or not accounted for.... \*37                       \*51                       \*53

\* NOTE.—Most of these are cases exposed to possible infection, and isolated for further observation.

## MINNESOTA WEATHER SERVICE.—REPORT FOR JUNE, JULY AND AUGUST, 1891.

FURNISHED BY MINNESOTA STATE WEATHER SERVICE, J. H. HARMON, DIRECTOR.

STATIONS	ATMOSPHERIC PRESSURE.			TEMP. OF AIR.	No. of thunder storms...	8 4 4		
	EXTREME.				No. of hail storms...	No. of clear days...	No. of cloudy days...	No. of rainy days... .01 inch or more
	Monthly mean...	Monthly range...	Date.....	Lowest Barometer...	Month of rain... .01 inches)	Month of rain... .01 inches)	Month of rain... .01 inches)	Month of rain... .01 inches)
Brainerd.....	65.0	48	8.44	10	13	12	5	1
July.....	65.4	36	2.68	6	6	12	3	...
Aug.....	66.2	54	1.74	10	3	12	16	...
June.....	63.4	55	3.54	11	...	...	...	...
Grand Rapids.....	64.6	45	5.39	12	...	...	...	...
July.....	64.3	64	5.23	9	...	...	...	...
Aug.....	66.4	42	4.13	11	14	12	4	1
Duluth.....	61.0	37	3.82	13	9	7	15	2
July.....	62.3	41	3.11	10	6	10	10	15
Aug.....	66.3	52	5.98	17	...	...	...	...
Faribault.....	66.4	42	4.13	11	14	12	4	12
Aug.....	66.6	32	2.28	6	7	15	9	11
Farmington.....	67.7	52	2.11	4	3	22	6	11
Aug.....	64.7	47	5.43	12	14	11	5	11
Grand Meadow.....	66.6	38	3.82	4	6	10	15	5
July.....	66.2	57	2.14	3	5	15	11	4
Jackson.....	66.4	42	4.13	11	14	12	4	1
Aug.....	66.6	32	2.28	6	7	15	9	11
Kinbrae.....	67.6	62	2.51	11	...	...	...	...
Aug.....	60.6	49	3.81	10	15	8	7	5
Lake Winnibigoshish.....	61.7	33	5.4	12	13	13	5	8
July.....	62.0	45	2.46	11	8	19	4	5
Aug.....	61.3	60	3.57	7	10	11	9	3
Leech Lake.....	61.0	46	5.23	9	9	11	11	8
July.....	61.7	54	3.07	8	8	11	12	1
Mankato.....	66.2	49	3.44	13	12	14	9	9
Aug.....	66.4	40	2.99	13	7	15	9	2
* Minneapolis.....	65.3	52	3.18	10	7	13	11	...
July.....	66.4	34	2.80	10	7	15	9	...
† Minneapolis.....	66.4	34	2.80	10	7	15	9	...
Aug.....	66.2	49	3.44	13	12	14	9	9
Moorhead.....	63.4	41	3.57	12	6	8	17	22
July.....	64.9	62	2.54	7	3	6	...	5
Aug.....	65.4	51	4.28	11	...	...	...	3
Montevideo.....	66.8	45	1.15	8	...	...	...	...
Aug.....	67.3	64	0.89	7	...	...	...	...
Morris.....	64.5	49	4.15	7	16	9	5	4
July.....	65.7	47	4.74	10	6	18	7	...
Aug.....	66.8	61	1.61	9	0	17	14	1
Northfield.....	64.7	42	6.10	12	7	18	5	...
July.....	63.9	40	3.75	7	4	19	8	...
Aug.....	66.8	58	1.88	3	4	14	13	...
Pine River Dam.....	64.6	27	2.00	7	13	7	11	...
July.....	64.8	41	3.15	7	...	...	...	5
Aug.....	60.5	68	4.53	8	...	...	...	5
Pokegama Falls.....	61.9	51	5.24	11	...	...	...	6
July.....	61.9	51	5.24	11	...	...	...	...
Aug.....	60.5	68	4.53	8	...	...	...	...

## MINNESOTA WEATHER SERVICE REPORT.—CONTINUED.

STATIONS.	ATMOSPHERIC PRESSURE.										TEMP. OF AIR.	No. of thunder storms.....		
	EXTREME.					MONTHLY PRECIPITATION.								
	Date.....	Lowest barometer.....	Highest barometer.....	Monthly range.....	Monthly mean.....	No. rainy days, .01 inches or more.....	No. cloudy days.....	No. of fair days.....	No. of hail storms.....	No. of clear days.....				
	Mean rendered barometer.....													
Red Wing.....	{ June 29.89 30.30 4 29.63 19 66.2 45 6.86 14 6 14 10 2 11													
	July 29.99 30.29 24 29.72 12 65.4 37 2.77 10 6 9 16 1 4													
	Aug. 29.97 30.29 27 29.67 20 67.2 54 3.13 9 5 16 10 5 5													
Rolling Green.....	{ June .....					66.9 41 1.27 7 2 15 14 .....								
	July .....													
	Aug. .....													
St. Charles.....	{ June .....					63.1 38 7.64 11 18 7 5 .....								
	July .....						62.5 34 1.90 9 .....							
	Aug. .....						62.6 51 2.80 5 .....							
St. Paul.....	{ June 29. 0 30.33 4 29.64 2 65.5 49 4.18 13 15 11 4 .....													
	July 30.00 30.31 21 29.71 12 65.7 37 2.07 9 8 17 6 .....													
	Aug. 29.98 30.32 27 29.68 20 67.5 55 3.42 9 4 21 6 .....													
St. Vincent.....	{ June .....													
	July .....													
	Aug. .....													
La Crosse, Wis....	{ June 29.94 30.34 5 29.67 19 68.0 46 5.62 11 9 17 4 .....													
	July 30.03 30.32 9 29.78 12 68.8 40 2.92 10 2 20 9 3 .....													
	Aug. 30.01 30.27 27 29.65 2 68.0 58 1.48 8 7 17 7 1 .....													
Mean .....	{ June 29.99 30.34 .....	29.63 .....	63.8 49.4 1.77 11 13 11 6 .....											
	July 30.00 30.32 .....	29.71 .....	64.6 59.1 3.27 9 7 13 11 .....											
	Aug. 29.97 30.30 .....	29.67 .....	63.8 54.6 2.60 8 5 15 11 .....											

STATE SUMMARY FOR JUNE, 1891.—Atmospheric pressure (in inches), monthly mean., 29.93; maximum observed, 30.42, at Duluth, on the 4th; minimum observed, 29.53, at Moorhead, on the 9th; range for the State, 0.89.

TEMPERATURE—(Deg. F.) monthly mean., 63.8; highest monthly mean., 63.4, at Farmington lowest monthly mean, 53.8 at Duluth; maximum, 97, at Crookston, on the 13th; minimum, 20, at Pokegama Falls, on the 5th; range for State, 77; greatest local monthly range, 68, at Pokegama Falls; least local monthly range, 38, at St. Charles; greatest daily range, 34, at Moorhead, on the 18th; least daily range, 2, at Duluth on the 3d.

PRECIPITATION—(in inches), average for State, 4.77; greatest, 8.41, at Alma City; least, 2.67, at Duluth.

WIND—Prevailing direction, SE.; maximum velocity, 44 miles an hour, from the southeast at Moorhead on the 23d; other gales reported throughout the State, on the 3d, 25th and 27th.

MISCELLANEOUS PHENOMENA—Thunder storms (dates of) 1st, 2d, 5th, 10th, 12th, 13th, 14th,

15th, 16th, 17th, 20th, 21st, 23d, 24th, 27th and 28th; hail storms, 24th and 27th; lunar halos, 13th.

MONTHLY SIGNALS—According to reports of displaymen, Signal Service weather forecasts for Minnesota were verified as follows: For weather, 73.7 per cent; for temperature, 79.7 per cent; for weather and temperature combined, 76.1 per cent.

REMARKS—The temperature of the month was slightly below the average, the rainfall was in excess in the western and southeastern portions and slightly deficient elsewhere.

NOTE—Owing to the re-organization of the Weather Bureau, Mr. Moore has been transferred to the Wisconsin Weather Service. Mr. J. H. Harmon succeeds him in this Service.

STATE SUMMARY FOR JULY, 1891.—Atmospheric pressure (in inches), monthly mean., 30.00; maximum observed, 30.37, at Morris, on the 24th; minimum observed, 29.57, at Moorhead, on the 12th; range for State, 0.80.

TEMPERATURE—(Deg. F.), monthly mean., 64.9; highest monthly mean., 66.8, at Montevideo; lowest monthly mean., 61.0, at Duluth and Leech Lake; maximum, 90, at Grand Meadow, on the

12th; minimum, 34, at Pokegama Falls, on the 7th, and 25th; range for state, 56; greatest local monthly range, 51, at Pokegama Falls; least local monthly range, 27, at Pine River Dam; greatest daily range, 33, at Moorhead, on the 30th; least daily range, 5, at Duluth, on the 2d.

**PRECIPITATION**—(in inches), average for the State, 3.27; greatest, 5.47, at Lake Winnibigoshish; least, 1.15, at Montevideo.

**WIND**—Prevailing direction, NW.; maximum velocity, 36 miles an hour from the SE., at Moorhead on the 2d; other gales reported throughout the State on the 16th, 22d and 23d.

**MISCELLANEOUS PHENOMENA**—Thunder storms (dates of) 1st, 2d, 6th, 10th, 12th, 13th, 14th, 16th, 17th, 18th, 20th, 21st, 22d, 23d, 24th, 25th, 28th, 29th and 31st; hail storms, 21st and 22d; solar halos, 7th, 24th and 25th; lunar halos, 13th; light frost reported on the 7th, at Lake Winnibigoshish and Pokegama Falls, and on the 24th and 25th at Montevideo.

**MONTHLY FORECASTS**—According to the reports of the displaymen the United States Weather Bureau forecasts for Minnesota were verified as follows: For weather, 77.4 per cent; for temperature, 85.8 per cent; for weather and temperature combined, 80.8 per cent.

**REMARKS**—The temperature for the month was about five degrees below the normal and the rainfall was deficient nearly one inch.

**STATE SUMMARY FOR AUGUST, 1891**—Atmospheric pressure (in inches), monthly mean., 29.97; maximum observed, 30.33, at Moorhead, on the 27th; minimum observed, 29.63, at Moorhead on the 7th; range for state, 0.70.

**TEMPERATURE**—(deg. F.) monthly mean., 65.8; highest monthly mean., 68.3, at Minneapolis; lowest monthly mean., 61.7, at Leech Lake; maximum, 98, at Crookston on the 5th, Kinbrae on the 8th Minneapolis on the 8th and Montevideo on the 7th, minimum, 32, at Morris on the 23d; range for state, 66; greatest local monthly range, 64, at Crookston and Montevideo; least local monthly range, 41, at Duluth and Pine River Dam, greatest daily range, 39, at Moorhead, on the 18th and 28th; least daily range, 5, at Duluth, on the 7th.

**PRECIPITATION**—(in inches), average for state, 2.60; greatest, 5.25, at Crookston; least, 0.69, at Montevideo.

**WIND**—Prevailing direction, NW., maximum velocity, 49 miles an hour from the SW., at Moorhead, on the 7th; other gales reported throughout the state on the 21st, 22d and 29th.

**MONTHLY SIGNALS**—According to reports of displaymen, weather and temperature forecasts for Minnesota were verified as follows: For weather, 68.1 per cent; for temperature, 80.4 per cent; for weather and temperature combined, 73.0 per cent.

**REMARKS**—Light frosts occurred throughout the state on the 23d, 24th, 27th, 28th, 30th and 31st; a killing frost is reported from Grand Meadow on the 24th; thunder storms were frequent during the month and hail fell on the 3d, 13th and 25th; an excessive rainfall of 3.22 inches occurred at Crookston, on the 6th. In the northwestern part of the state the temperature has been in excess of the normal, while in the northeastern and southern part the temperature has continued below; the rainfall has been below the normal throughout the state.

## DISTRIBUTION AND MORTALITY of the More Important Diseases in Minnesota, during the month of June, July and August, 1891.

(Each record corrected up to the 20th of the following month).

**NOTE.**—The population is stated in the terms of the United States census of 1890: State, 1,201,826, divided into five classes. *First class* (cities of over 100,000), St. Paul and Minneapolis, 297,894. *Second class* (cities of from 15,000 to 50,000), Duluth and Winona, 51,323. *Third class* (cities of from 5,000 to 15,000), Stillwater, Mankato, St. Cloud, Faribault, Red Wing, Rochester, 44,732. *Fourth class* (centres of from 2,000 to 5,000), census returns not yet at hand. *Fifth class* (population less than 2,000), census returns not received.

**STATE:** Total deaths in June, 582, (1890, 777). July, 814, (1890, 970). August, 891, (1890, 932); a very marked reduction as compared with the same months of last year.

**Diarrhoeal Diseases of Children.**—June, 57 in 20 localities and 18 counties; July, 216, in 28 localities and 21 counties; August, 252, in 100 localities and 46 counties. The mortality from this cause above the average of the last four years in June, but much below for July and August.

*Tuberculosis* (Consumption, Scrofula).—*June*, 103, in 43 localities and 33 counties; *July*, 75, in 27 localities and 22 counties; *August*, 73, in 38 localities and 27 counties.

*Diphtheria*.—*June*, 28, in 15 localities and 12 counties; (1890, 28, in 12 localities and 11 counties); *July*, 31, in 15 localities and 12 counties, (1890, 42, in 12 localities and 12 counties); *August*, 19, in 12 localities and 11 counties, (1890, 38, in 13 localities and 13 counties); an encouraging record in our long struggle with this most persistent and fatal disease.

*Pneumonia* (in order of mortality this disease has stood next to Diphtheria for the last four years).—*June*, 38, in 18 localities and 17 counties, (1890, 36, in 18 localities and 17 counties); *July*, 18, in 7 localities and 7 counties, (1890, 15, in 10 localities and 10 counties); *August*, 14 in 9 localities and 9 counties, (1890, 16, in 10 localities and 10 counties); below the average of the last four years.

*Enteric Fever* (Typhoid Fever, Nerve Fever).—*June*, 17, in 10 localities and 10 counties, (1890, 13, in 7 localities and 7 counties); *July*, 13, in 9 localities and 7 counties, (1890, 17, in 12 localities and 12 counties); *August*, 24, in 7 localities and 4 counties, (1890, 13, in 9 localities and 9 counties); the average is about that of the last four years; the mortality from this cause began its annual rise in August, and we may expect considerable increase in September.

*Scarlatina* (Scarlet Fever, Scarlet Rash)—*June*, 15, in 9 localities and 6 counties, (1890, 9, in 4 localities and 4 counties); *July*, 5, in 4 localities and 4 counties, (1890, 2, in one city); *August*, 8, in 4 localities and 4 counties, (1890, 8, in 4 localities and 4 counties); not far from average mortality and prevalence.

*Croup* (in a sanitary sense Croup should always be treated as Diphtheria).—*June*, 5, in 4 localities and 4 counties, (1890, 8, in 6 localities and 6 counties); *July*, 2, in 2 localities and 2 counties, (1890, 6, in two localities and 2 counties); *August*, 1, (1890, 5, in 5 localities and 5 counties); slight mortality and prevalence, and less than average in four years.

*Measles*.—But 7 deaths in last three months; there were 18 in same months last year.

#### IN CENTRES OF POPULATION.

*First class* (cities of 297,894 population).—Total deaths in *June*, 370, at the rate of 12.4 to 1,000 living; *July*, 491, at the rate of 16.5 to 1,000 living; *August*, 392, at the rate of 13.9 to 1,000 living.

*Diarrhoeal Diseases of Children*.—*June*, 34; *July*, 172; *August*, 98.

*Enteric Fever*.—*June*, 8; *July*, 6; *August*, 16.

*Diphtheria*.—*June*, 8; *July*, 9; *August*, 6.

*Pneumonia*.—*June*, 27; *July*, 13; *August*, 7.

*Tuberculosis*.—*June*, 49; *July*, 39; *August*, 21.

*Second class* (cities of 51,323 population).—Total deaths in *June*, 48, at the rate of 9.5 per 1,000 living; *July*, 53, at the rate of 10.3 per 1,000 living; *August*, 98, at the rate of 19.9 per 1,000 living.

*Diarrhoeal Diseases of Children* occasioned the sudden increase in August.

*Diphtheria*.—But a single death in June and in August.

*Enteric Fever* (Duluth).—*June*, 2; *July*, 1; *August*, 4.

*Pneumonia*.—*June, 3; July, 1; August, 0.*

*Tuberculosis*.—*June, 4; July, 4; August, 7*

*Third class* (cities of 44,732 population) —Total deaths in *June, 20; July, 20; August, 19*; average for the three months, about 4.5 per 1,000 living.

*Diarrhoeal Diseases of Children*.—*June, 3; July, 7; August, 6.*

*Diphtheria*.—*June, 0; July, 0; August, 1* (St. Cloud).

*Scarlatina*.—*June, 2* (Red Wing); *July, 1* (Red Wing); *August, 1* (St. Cloud).

*Enteric Fever*.—Not a death reported in the three months.

For the fourth and fifth classes, representing over 900,000 of the population of the State, the census returns have not been obtained, though repeatedly promised.

#### TYPHOID FEVER IS MOST FATAL IN OCTOBER.

THIS is a common experience the world over. The Statistics of Minnesota for four years past, give the maximum mortality to October, except in 1890 when the usual sudden rise, beginning in July and ending in October, was cut short in August, changing very little till the usual decline began in November, a month later than usual. The average annual mortality for this disease (1887-90) was 5.92. There has been a steady decline since it has been under closer observation, and the disinfection of the bowel discharges has become the rule. (1887, 717; 1888, 662; 1889, 572; 1890, 418.) This is very encouraging, but not satisfactory. The average mortality has been at the rate of 592 a year, or at the rate of 454 to 1,000,000 of population. The maximum in England (16 years) was 371 in the million. The Minnesota rate was 321 for 1,000,000 in 1890. But this is not a fair statement, as the mortality in cities from this cause is much larger than in the country. Taking, for example, our city population (ten largest cities) numbering 393,949, we find that there were among them 195 deaths from this disease (46.4 per cent in 1890), at the rate of 467 in 1,000,000 population, while 1,007,877, living in smaller cities, villages and townships, suffered 213 deaths, at the rate of 221 in 1,000,000. A paper based on the study of 2,369 deaths from typhoid fever, in 1887-90, soon to appear in this journal, will, for the first time, give some of the evidence we have been slowly, patiently and carefully gathering for the last five years, in the vital statistics of the population.

*CALF VACCINE, ITS PRODUCTION AND USE IN MINNESOTA.*

Our readers will remember that after a careful study of the methods in use in England, and on the Continent, by a visit to the establishments devoted to that purpose, the product of the National Vaccine Institution in London was selected for trial here. After a series of experiments here with a sample furnished by Dr. Robert Cory the director of the institution, the virus, cultivated on young and healthy calves, was first used on a few adults, and then upon over 900, infants and children, of the public schools of Red Wing. The result was all that could be desired. Over 98 per cent. of the primary vaccinations of children were successful, and not one of them all produced any severe, or irregular result. The issue of specimens for trial, to health officers and to other medical men, was then begun, and the results were equally favorable.

In July the writer was delegated to represent this Board in the International Congress of Hygiene and Demography which met in London last month. He took a sample from calf No. xxxix of our series, to the National Vaccine establishment, and Dr. Cory carefully tested it upon one of the calves there. The result he reported to be the same as by the lymph in regular use by himself. This was to be expected, but it was none the less satisfactory to prove the expectation by a rigorous trial. Another sample was then taken from one of the calves there, in which the product was especially perfect, and it will be used for a comparative trial with our own virus preserved for the purpose. It is expected to begin the issue of calf vaccine from the State Board station again just as soon as a supply can be produced.

Experience has taught us that to maintain a perfect supply the results of the use of all samples sent out must be reported, and this is a very small return to be made for such a product. It will be insisted on as an essential part of the work. H.

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**S**EA-BOARD INSPECTION OF IMMIGRANTS AND THE OCCURRENCE OF INFECTIOUS DISEASES IN MINNESOTA—Since our last reference to this subject (April, 1891) the request then made to the General Government has resulted in the regular notification of the arrival at the port of New York, of immigrants

having, or who have been exposed to, infectious disease, and are coming to this State. This, with our complete sanitary organization, enables the Secretary to notify all Local Boards of Health concerned, of the probable arrival of the immigrant before it can happen. The effort has already resulted in much good, and is the first step in a great sanitary reform—the *notification of infections diseases from without our borders*, as the complement of the *notification of such disease from within*, which we already have. Further advance is inevitable on this line, some of which is already preparing. The thanks of this Board are due to the head of the Marine Hospital Service, who submitted our claim to the Secretary of the Treasury and advised its admission. The work began in June, and the first notification is dated June 25th, 1891.

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THE PRESENT METHOD OF DEALING WITH SMALL-POX ON  
BRITISH SHIPS, AT THE PORT OF LONDON, AND AT  
THE ST. LAWRENCE QUARANTINE,

IS a very important matter for the States of this country who receive so many immigrants from British ships through English ports. The following example is, I am assured, a fair one, and its truth has been verified, by personal inquiry, both in England and in Canada.

April 13th, 1891, the Allan S. S. Brazilian left Montevideo with a cargo for London. On the 22d A. R.—, able-bodied seaman, came down with small-pox and was isolated on deck in a boat, and the captain cared for him.

May 8th the ship arrived at Gravesend, late at night, and at 9 o'clock next morning the deputy medical officer of the port came on board, ordered the removal of the sick man and his effects to the hospital, the destruction of bedding by fire, the disinfection of infected places on the ship with burning sulphur, and offered free vaccination to the crew. The last was rejected, and the ship was given permission to leave at 10:10 a. m. She sailed for France, took on wool at Dunkirk, and returned to London on the 13th. She discharged a part of her crew, replaced them by new men, and sailed, on the 16th, for Montreal.

On the 19th the captain had the small-pox. On the 20th the fourth engineer had it, and was put in the cabin with the captain. On the 27th an apprentice, R. I. P.—, feeling unwell, was isolated in the cabin, where he had been in attendance on the captain.

On the 29th the ship reported at the St. Lawrence quarantine, where she anchored. Within the next twenty-four hours the sick had gone to the hospital, the crew had been vaccinated with fresh animal virus, the ship had been drenched with bi-chloride of mercury spray, and infected places treated to super-heated steam. On June 5th, after about seven days detention, the ship was

released. The apprentice P—— had rapidly recovered from his ailment, which was not small-pox, and was re-vaccinated with the crew, but it did not affect him, though working on most of the rest. He was so well, when the ship went out for London, on June 11th, that the doctor permitted him to join. On the 19th he was taken sick, and he died of small-pox on the 22nd, two days from London. The new captain reported the fact, the only unvaccinated sailor accepted vaccination, the infected berth and things had been treated to sulphur fumes. The ship reported "no new case and all well" when she passed Grosse Isle July 5th, going to Montreal.

The important point for us in this little history is the fact that when a case of small-pox arrives on a ship at an English port, the sick is removed with his effects to the hospital, his bedding is usually burned, the place he occupied is disinfected with the fumes of sulphur burned in an iron pot, by a sanitary inspector, the crew are offered vaccination, the acceptance of which is voluntary, and the ship is then permitted to go. In this case the time occupied was less than two hours, and then the vessel was allowed to go to another country, France. The dates are so well fixed, by the log of the steamer, and confirmed in other ways, that they enable a very probable statement of the origin and distribution of the infection.<sup>9</sup>

The first case took the infection of small-pox about a week before he left South America. Though exposed to the first case from the 13th of April, the two others (captain and fourth officer) did not take the infection till the 5th to 7th of May, a few days before reaching Gravesend. The last case had at least three distinct and separate exposures—the first from the original case, the second from the captain and engineer whom he attended on the ship, the third from them while in the hospital at Grosse Isle. The last exposure gave the infection and was fatal, though vaccination with fresh animal virus, by thoroughly competent hands, failed.

The dates show, further, that had the Allan Company done what they have been repeatedly urged to do—make re-vaccination a pre-requisite in selecting officers and crew—no case would have occurred on the Brazilian, the week of anchorage at St. Lawrence quarantine would have been saved, as would the life of the unfortunate apprentice. It is very evident, too, that the danger of the exportation of small-pox to Scotland (where the discharged men are reported to have gone), France, Canada, and the United States would have been prevented.

Protesting against the manifest carelessness of such management, the writer was informed that cholera, yellow fever and plague were the only diseases against which the isolation of infected vessels and their inmates is used, in English ports. No arrangement has, as yet, been made to examine trans-immigrants (*i. e.*, persons crossing England on the way to America or elsewhere), though the need therefor is very apparent from English experience. In fact, there is the same danger of the introduction of the disease we are discussing from America into England, but not to the same extent, because the current is, very largely, the other way. I was frequently reminded that vaccination was compulsory there, early in life, and gave them a greater freedom from the danger referred to than we, in the absence of compulsory vaccination, can have. It will be easy to show from English experience that small-pox is still as dangerous there as with us, and that it would be a common-sense precaution to submit persons and things, exposed to its infection on ship-board, to the restraint of isolation and disinfection, and, in addition, to insist on a re-vaccination or the evidence of a previous successful vaccination.

H.

THE INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY which met in London in August was in many ways a great success. To begin with, it had the endorsement and official support of the leading European governments, who sent their representative men, and they include many of the best foreign sanitarians in their number. Then most of the representative Sanitary Associations of the world sent some of their best men, so that there was a desirable admixture of officials, and individual workers in every department of the general subject. The membership present, and participating more or less in the work of the various sections, was stated to have numbered about 3,000. The only race I did not see there was the American Indian. Nearly every civilized people had one or more representatives, and the great gathering, at St. James Hall, for the opening session of the Congress was a sight only possible in that great centre of civilization, London.

It was an agreeable surprise to find the Prince of Wales as "punctual as a clock" in his attendance, and so methodic and business-like in the performance of his duties as President of the Congress. His address was a model of its kind and delivered with an ease and distinctness, a freedom from mannerisms and hesitation, which made it the best speech of the occasion. He looked like a cultivated English gentleman, and spoke like one thoroughly impressed with the importance of his subject and the occasion.

After addresses by Sir James Paget, of England, Prof. Brouardel, of France and others, the Prince concluded the session with a brief and happy little

speech. The regular sessions of the sections began the next day. As they were held simultaneously one had to select those best suited to his needs. So I was compelled to choose those of Preventive Medicine and State Medicine. The great mistake of the management was limiting the general meetings to the formal opening and closing of the Congress. There was, apparently, a fear to make the discussions of "burning questions" too general, and of opening the doors to the genus "crank" always in force at such gatherings. As it was, we had little opportunity to see and hear the distinguished men, who ought to have been brought out on their favorite topics, where all could have heard them. In the sections the supply of papers, and of competent men to discuss them, was far in excess of the time available, and so there was a pressure on reader and speaker not at all conducive to the comfort of either, or of the hearers.

In deference to the continental delegates many papers were read in French or German, though some of them were printed in English and distributed before the reading. As was natural, some of the English delegates took rather insular views of the questions discussed, and showed much less acquaintance with the ways and methods in use elsewhere, than was to be expected of the practical workers they are known to be.

The work done was more a review of the past than an announcement of novelties, or a distinct and deliberate agreement as to work for the future. The only international movement discussed was that of the control of infectious disease, which amounted to little else than a discussion of cholera and the Red Sea route for its introduction into Europe which is the usual "picce de resistance" when English and French Sanitarians meet. They courteously and "with sentiments of distinguished consideration" agreed to disagree, so far as I could understand their sentiments. It struck many delegates that the route by the Dead Sea, which fortunately has no outlet, would have been the appropriate one for that discussion. They were doubtless wrong, but the time of the section was too precious for so exclusive and fruitless a debate. Diphtheria received quite elaborate consideration, and very important contributions were made to its natural history in various parts of the world. Foreign sanitarians are awakening to the knowledge that this disease is assuming the proportions of a wide spread and malignant pest. The work done in its bacteriology was recognized and a strong stimulus was given to a wider study of its causation and the means most available for its control. The question of the obligatory notification of infectious diseases received a sharp discussion, and awakened a lively interest. It was one of the few questions brought to the test of a vote after discussion, when the principle was overwhelmingly carried. The practice is growing rapidly in England and is justifying itself abundantly by its results in the prevention and control of infectious diseases.

#### HEALTH OF CHILDREN IN THE SCHOOLS.

**H**OW TO PREVENT THE SPREAD OF INFECTIOUS DISEASE AMONG CHILDREN IN SCHOOLS is a much more serious question than most teachers, or parents think it to be. The following memorandum is written for their information, and will be distributed by Local Boards of Health and by the

Secretary of the State Board—after this publication in PUBLIC HEALTH IN MINNESOTA.

*The co-operation of teachers is obligatory.* Sections 23, 24, 25 and 26, of Chapter 132, Laws of 1883, which defines the duty of teachers as members of the community and as officers of the law read as follows:

"SEC. 23. That it shall be the duty of every person knowing of any person sick of any contagious disease dangerous to the public health, who he shall have reason to think requires the attention of the Local Board, to at once report the facts to the Board in regard to the disease, condition and dwelling place or position of such sick person."

SEC. 24. That no person shall within the limits of any town, city or village within this state, without a permit from the Local or State Board of Health, carry or remove from one (1) building to another, or from a vessel to the shore, or any railway cars, any sick person of any contagious disease, or the body of any person having died of contagious disease; nor shall any person, by any exposure of any individual sick of any contagious disease, or of the body of such person, or by any negligent act connected therewith, or in respect to the care and custody hereof, or by a needless exposure of himself, cause, or contribute to or promote the spread of disease from any such person or from any dead body."

SEC. 25. That every person being the parent or guardian, or having the care, custody or control, of any minor or other person, shall, to the extent of any means, power or authority of said parent, guardian or other person, that could properly be used or exerted for such purpose, cause and procure such minor or person under control to be so promptly, frequently and effectively vaccinated that such minor or individual should not take, or be liable to take the small pox."

SEC. 26. That no principal, superintendent or teacher of any school, and no parent, master or guardian of any child or minor, having the power and authority to prevent, shall permit any child or minor having scarlet fever, diphtheria, small-pox or any dangerous, infectious or contagious disease, or any child residing in any house in which any such disease exists, or has recently existed, to attend any public or private school until the Board of Health of the town, village, borough or city shall have given its permission therefor; nor in any manner to be unnecessarily exposed, or to needlessly expose any other person to the taking or to the infection, of any contagious disease."

The need for so strict legislation will be evident to the teachers and parents who will study the following statistics:

TABLE (AVERAGE OF FOUR YEARS) SHOWING THE LEADING CAUSES OF DEATH DURING THE SCHOOL GOING AGE (5 TO 21 YEARS) AND THEIR RELATIVE MORTALITY.

DISEASE.	Total deaths of all ages (4 years) 87-88 89-90.	Total deaths (5-20 years) for four years.	Total deaths (5-10 years) for four years.	Total deaths (10-15 years) for four years.	Total deaths (15-20 years) for four years.	Per cent of Mortality between 5 and 20 Years to total deaths, average in four years.	Relative Mortality between causes of Death during school going age.
Tuberculosis.....	5,315	1,048	98	194	786	19.7	23.7
Diphtheria.....	3,306	1,625	1,135	334	146	49.1	36.8
Typhoid Fever.....	2,369	661	125	168	368	27.9	14.9
Pneumonia.....	3,335	414	178	84	152	12.4	9.3
Scarlatina.....	843	274	204	50	20	32.5	6.2
Croup.....	974	179	157	20	.....	18.3	4.0
Measles .....	714	151	68	36	47	21.5	3.4
Bronchitis .....	1,364	67	35	15	17	4.9	1.5
Total.....	18,225	4,419	2,010	873	1,536	24.3	.....

The diseases most fatal during *school going* life (i. e. between 5 and 20 years of age) have been chosen, and the table exhibits the statistical evidence carefully corrected and arranged, for the last four years in Minnesota. The ages are arranged in three quinquennial periods to bring out more clearly the fact that the danger of death by infectious disease as a whole, and by each leading one of the class, is largely affected by the age of the victim, and so will vary in schools of different grades, on that and other accounts.

The diseases named are also those most familiar to all of us, but a word of explanation is needful for one or two of them. *Tuberculosis*, for example, is the name of a considerable class of so called diseases, of which Koch discovered the common cause, so that *consumption*, *white swelling*, *scrofula*, *water on the brain* and other kindred affections are no longer each a peculiar disease, but local evidences of the operations of a special agent, a microscopic vegetable cell like a club, and so called *bacillus tuberculosis*.

*Diphtheria* and *Typhoid Fever* are now known to be due to the presence of other bacilli which (themselves, their products, or both) are their causes. The probability is that all the rest have a similar origin. At least we know that each have a "specific cause" with the possible exception of bronchitis, but not of all forms of pneumonia; that it is a vegetable parasite, and that coming from without the body originally it is able to survive and even grow, outside the body again, when expelled from it, in air and water, on, and, in food, soil and clothing.

*Tuberculosis* is the most fatal of all diseases, causing about 10% of all deaths in our population; 10% of all the victims are of the school going age and of these 74% are between the ages of 15 and 20 years. The disease, in any of its forms, usually unfits a child for school-life, so that cases are comparatively rare in schools. So much is said as to its danger that teachers ought to know the following facts: Ninety-two per cent of all deaths from this cause, of all ages, are from consumption of the lungs, and that is the only form of this disease which is likely to spread the infection, by the sputa (matter raised from the lungs). The use of the common spittoon by all who cough or spit, with clean, oiled or painted floors, will remove danger and add much to the purity of the common air of school rooms.

*Typhoid Fever* is proportionately more fatal during the school going ages than tuberculosis (about 28% of its deaths occur then) though the mortality is but two-thirds as great. The specific poison here is found in the bowel discharges. It will therefore collect in the outhouses of schools and afford another reason why they should (in the absence of a water and sewer supply) be earth closets. Water supply tainted by the seeping from privy vaults into adjacent wells, is so commonly associated with outbreaks of this disease that they are usually classed as cause and effect. The earth closet of cheap and easy construction, in which dry earth and quick-lime are used, will protect pupils from the danger of infection by this disease in school hours. (Send to your Local Board of Health, or to the Secretary of the State Board of Health, Red Wing, for plans and instructions to make and use them.)

It will be best to consider *pneumonia* and *bronchitis* here. They include all affections of the air passages, except consumption. They appear in the

school room as the "*common colds*," i. e. coughs chiefly, and then fever; pain in breathing, or "sore throat." Their importance in the school room is that they often *mash* the infectious diseases (diphtheria, croup, measles, scarlet fever) and so when at all marked, children suffering from "common colds" and "sore throat" should be excused, to be cared for at home till any danger of acute disease is passed, and the true character of the affection is known. Together pneumonia and bronchitis find about 17% of their total mortality in the school going age, and by far the largest share between the ages of 5 and 10 years, in the primary schools.

Of our list of diseases affecting school children there remain four, *Diphtheria, Croup, Scarletina and Measles*. They are the "eruptive fevers" in which the characteristic of each is a rash or membrane on the surface of the skin or mucous membrane.

Together they have (during the last four years) killed 2,229 children of the school going ages, of whom diphtheria claims more than 72% (1,625) and much the largest proportion of these between 5 and 10 years of age (70%). Croup is noted here, because it is so often associated with diphtheria, that it is a question whether it is not always a form of that disease. They must be classed together as diphtheria for the protection of healthy children from possible exposure. The infection of this disease is also of vegetable origin, a bacillus (itself, its products, or both). It is very resistant to ordinary destruction and is preserved for months, dried on clothing or other things outside direct sunlight and moisture, and may grow in moist and dark places.

It is carried in the clothing of those who have been sick or of those who have associated with, or cared for them, and the infectiousness of the throat and tonsils, may remain active for at least three weeks after apparent complete recovery. The guide to school practice in dealing with this disease therefore is:

First: No children who have had the disease to be admitted to school under three weeks after complete recovery, with disinfection of person and clothing.

Second: No child from a family infected with diphtheria to be permitted in school till the disease has been recovered from, for at least three weeks and the disinfection of person and other things thoroughly done.

Third: That this work be under the direction of the Local Board of Health, to whom the school teacher will look for certificates of these facts. (See Section 26 above.)

Fourth: That the teacher (as directed in Section 23 above) inform the Chairman, or nearest member of the Local Board of Health, of the existence of actual, or reported infectious disease, so as to enable them to take measures of *isolation and disinfection* needful in the interest of the infected family and the school children liable to infection from them.

H.

#### VITAL STATISTICS—BIRTHS AND DEATHS.\*

WITH this number of PUBLIC HEALTH every Chairman and Township Clerk, and every Health Officer, is furnished with a revised copy of the Public Health Laws. On the last page of the circular is the Vital Statistics Law. If Health Officers and Township Clerks, whose duty it is to collect

these statistics, will *carefully read the law* there will be less occasion to ask questions of the Secretary, which he can only answer by sending the law. So much has been written in "PUBLIC HEALTH" and in a very voluminous correspondence with individual officers, that one would think every Clerk and Health Officer should know the legal requirements of his position. Attention is again called to the following points, constantly neglected or forgotten.

*First: The returns of births and deaths to Clerks and Health Officers are matters of important legal value and record.* They are required to be furnished by parents, householders, next of kin, superintendents of public institutions, physicians and midwives within ten days of the event of the birth or death. (For details see the Law.)

*Second: Clerks and Health Officers should furnish to every physician and midwife practicing within their jurisdiction copies of blanks Nos. 1 and 2, which have been sent to every such officer in the State, and they have only to ask, to get as many more as they require, by the next mail.*

*Third: Call attention when sending these blanks, to the duty and the penalty, which is quoted from the Law, on the top of every such blank, by marking it.*

*Fourth: When anyone positively refuses or deliberately neglects to comply with the law,* the Health Officer and Clerk have no alternative than to enter complaint before a justice. One such case prosecuted to a verdict will do more than any amount of courteous request with the class for whom the penalty is intended or necessary. In dealing with my own profession I have never had any serious difficulty, and medical men have only to be made aware of the duty and its importance to perform it. They may plead business, carelessness or forgetfulness, but not intentional neglect.

*Fifth: Ask the cooperation of the clergy, as far as to permit copies of their records of baptisms and burials, which will often give a clue to the responsible parties.*

*Sixth: The returns of births and deaths to the Secretary of the State Board are a "certified copy of the registry of births and deaths, which have occurred within the district of the officer making the return, during the calendar month immediately preceding."* The registry is made in a book provided by the County Auditor, and is itself based upon the individual returns sent in or collected, which should be filed in the office as the authority for the facts registered.

*Seventh: If Town Clerks and Health Officers will add to the records of deaths the name and address of the attending physician, the Secretary will save them further trouble, by corresponding, when needful, with the doctor himself.* This saves them the bother of inquiry for correction of causes of death, or for details of cases to perfect the record. (Seven hundred and fifty requests of this kind have been sent from this office since Jan. 1, 1891.) H.

#### DISEASES OF DOMESTIC ANIMALS.

THE RELATIONS OF THE INSPECTIONS OF LIVE STOCK AND MEATS IN THE CHICAGO STOCK YARDS TO THE MEAT SUPPLY OF MINNESOTA—During a day spent in Chicago, recently, I visited the Stock Yards with two of the

officers of the Illinois Live Stock Commission, and met one of the inspectors of the Agricultural Department. On my return to the city called on the Commissioner of Health.

There are three sanitary inspections of live stock and products in these yards:

*First:* The inspection by the officials of the city sanitary authorities, of stock and products intended for the city market.

*Second:* A live stock inspection under the direction of the Live Stock Commission.

*Third:* The recently established inspection by the Agents of the Agricultural Department, which includes stock and products intended for foreign markets.

It is very well known that a considerable quantity of the products of the Chicago stock yards come into the Minnesota markets as fresh and prepared meats, and other products, lard, etc. For the above, and other reasons, a careful inquiry is now going on with the aid of all the authorities referred to, so that we hope soon to be able to clear up some of the very interesting and important sanitary questions, which grow out of these live stock and meat product inspections in Chicago.

#### MALIGNANT CATARRH OF CATTLE.

OUR readers interested in the subject will remember that this disease, in Havana Township, Steele County, was thoroughly investigated by the Secretary, assisted by Prof. Law, Dr. Sandberg and others, in 1886. (See PUBLIC HEALTH IN MINNESOTA, Vol. III., pages 33-58-79; Vol. IV., pages 13-16.) Prof. Law stated what has been proven since. "The morbid principle is contracted from the soil, and that each animal is infected directly from that source and independently. The remedy is to move cattle affected to up-land soil—the infected are almost always on low boggy or swampy land. There is no danger of infection from one animal to another."

In August Mr. Andrew Johnson, of Aurora Township, Steele County, reported his own cattle sick and asked investigation. The Secretary corresponded with the Chairman of the Local Board of Health, Mr. P. Keenan, who called W. Amos, V. S., of Owatonna. His report is as follows. It will be noticed that this township adjoins Havana township (seat of last outbreak) on the south.

"I have to-day examined a cow on the farm of Andrew Johnson. The cow is affected with Malignant Catarrhal Fever. This fever is one form of Anthrax. The disease is not considered infectious, but cattle subjected to the same influences will be similarly affected. This disease originates from low-lying pastures that have been covered with water during the early part of the season, or is due to the effluvia given off from undrained land. It is claimed by some writers on the subject that it is in some cases due to the rapid changes of the weather.

The disease is due to a vegetable germ or Bacillus which, when introduced into the system, rapidly generates. The only preventative is to keep cattle off the low or boggy pasture. There is very little success in treatment.

W. AMOS, V. S."

# THE PUBLIC HEALTH

## LEGISLATION OF MINNESOTA.

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- I. AN ACT RELATING TO INFECTIOUS AND EPIDEMIC DISEASES OF MAN, AND THE PRESERVATION OF THE PUBLIC HEALTH.—(*Chapter 132, Laws of 1883, as amended by Chapter 4, of the Laws of 1885*).
  - II. AN ACT TO PREVENT THE SPREAD OF CONTAGIOUS OR INFECTIOUS DISEASES AMONG CATTLE, HORSES, AND OTHER DOMESTIC ANIMALS.—(*Chapter 200, General Laws of 1885*).
  - III. AN ACT TO REGULATE OFFENSIVE TRADES AND EMPLOYMENTS.—(*Chapter 222, General Laws of 1885*).
  - IV. AN ACT TO PREVENT THE POLLUTION OF RIVERS AND SOURCES OF WATER SUPPLY.—(*Chapter 225, General Laws of 1885*).
  - V. AN ACT TO PROVIDE FOR THE COLLECTION OF VITAL STATISTICS.—*Chapter 114, General Laws of 1887.*
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The above named General Laws are printed together as being the Public Health Acts which constitute and define, the duties of Boards of Health. Local Boards will please keep this "Law Circular" on file. Copies may be obtained on application to the Secretary of the State Board of Health at Red Wing.

# CHAPTER 132 LAWS OF 1883.

## *AN ACT RELATING TO INFECTIOUS AND EPIDEMIC DISEASES, AND THE PRESERVATION OF THE PUBLIC HEALTH.*

*Be it enacted by the Legislature of the State of Minnesota:*

**S**ECTION 1. Whenever any part of this state appears to be threatened with, or is affected by, any epidemic or infectious disease, the State Board of Health may make, and from time to time alter and revoke, regulations for all or any of the following, among other purposes: (1) For the speedy interment of the dead. (2) For house to house visitation. (3) For the provision of medical aid and accommodation for patients, physicians and nurses. (4) For the promotion of cleansing, ventilation and disinfection; and (5) Guarding against the spread of disease by quarantine or exclusion of any infected persons, and may by order declare all or any of the regulations so made to be in force within the whole or any part or parts of the district of any Local Board of Health in this state and to apply to any vessels on any of the water of this state or to any railway cars or trains or public vehicles of any kind, for the period named in such order, and may by any subsequent order abridge or extend such period.

**SEC. 2.** All regulations and orders so made by the State Board of Health shall be published in some paper of general circulation published at the capital of the state, and also in some paper published in the county where such disease may exist, and such publication shall be conclusive evidence thereof for all purposes.

**SEC. 3.** The Local Board of Health of any district or districts within which, or part of which regulations so issued by the State Board of Health are declared to be in force, shall superintend and see to the execution thereof, and shall appoint and pay such medical or other officers or persons, and do and provide all such acts, matters and things as may be necessary for mitigating or preventing the spread of any such disease, or for superintending or aiding in the execution of or executing such regulations as the case may require; said Local Board from time to time direct any prosecution or legal proceedings for or in respect of the willful disregard or neglect of any such regulation, or any regulation duly made and established by said Local Board. Said Local Boards shall have power of entry on any premises, vessel or vehicle, for the purpose of executing, or superintending the execution, of any regulations so issued by said State Board of Health or said Local Board.

**SEC. 4.** The town supervisors of each town together with a physician, to be employed by said supervisors when in their judgment necessary, or when ordered by the State Board of Health, shall constitute a Board of Health, and all villages, boroughs and cities shall have a Board of Health, to be chosen and to consist of the number hereafter provided, anything in the charter of any such village, borough or city to the contrary notwithstanding; such Boards shall, within their respective towns, villages, boroughs and cities, have and exercise all the powers necessary for preservation of the public health. Said village, borough or city Board shall consist of not less than three (3) members, one (1) of whom shall be a physician, and such physician shall be health officer and executive of the Board, and shall receive such compensation for his services as the council, or other bodies answering thereto, of the village, borough or city shall determine. Said Board shall be elected by the council, or other bodies answering thereto, of each village, borough and city on the first (1) Monday of April A. D. one thousand eight hundred and eighty-five (1885). One member of such Board shall be elected for and hold such office for the term of three (3) years, one for two (2) years, and one for one (1) year, and one member of such Board shall be so elected annually thereafter, and all vacancies occurring in said Board shall be filled in like manner. It shall be the duty of the health officer to perform and superintend the work prescribed in this act and shall perform such other duties as the Board may require. He shall furnish to the Board such information cognate to this act as from time to time they may deem necessary, and to make once in each year, in the month of May, and oftener if necessary, a thorough sanitary inspection of said town, village, borough or city, and present a written report of such inspection at the next meeting of the Board of Health, and he shall forward a copy of said report as soon as rendered to the State Board of Health; and he may at any time, when necessary, examine into all nuisances, sources of filth and causes of sickness, and said Board may make such regulations respecting the same as they may judge necessary for the public health and safety of the inhabitants, and every person who shall violate any order or regulation made by any Board of Health, and duly published, shall be deemed guilty of misdemeanor, and punished by a fine not exceeding one hundred dollars (\$100), or by imprisonment in the county jail not exceeding three (3) months. (As amended by Chap. 4, Laws of 1885).

**SEC. 5.** Notice shall be given by the Board of Health of all orders and regulations made by them, by publishing the same in some newspaper, if there is one published in such town, if there is none, then by posting up such notice in five (5) public places therein; and such publication of said orders and regulations shall be deemed a legal notice to all persons.

**SEC. 6.** Whenever any nuisance, source of filth, or cause of sickness is found on private property, the Board of Health shall order the owner or occupant thereof, at his own expense, to remove the same within twenty-four (24) hours; and if the owner or occupant neglects so to do, he shall forfeit a sum not exceeding fifty dollars (\$50), to be recovered in the name of and for the use of the town, city or village.

**SEC. 7.** Whenever such owner or occupant shall not comply with such order of the Board of Health, said Board may cause the said nuisance, source of filth, or cause of sickness to be removed, and all expenses incurred thereby shall be paid by the said owner or occupant, or by such other person as has caused or permitted the same.

**SEC. 8.** Whenever the Board of Health thinks it necessary for the preservation of the health of the inhabitants to enter any building or vessel in their town for the purpose of examining into and destroying, removing or preventing any nuisance, source of filth, or cause of sickness and shall be refused such entry, the health officer or any member of the Board may make complaint under oath to a justice of the peace of his own town, stating the facts in the case so far as he has knowledge thereof.

**SEC. 9.** Such justice shall thereupon issue a warrant, directed to the sheriff or any constable of the county, commanding him to take sufficient aid, and being accompanied by two (2) or more of the Board of Health, between the hours of sunrise and sunset, to repair to the place where such nuisance, source of filth, or cause of sickness complained of may be, and the same destroy, remove or prevent, under the direction of the members of such Board of Health.

**SEC. 10.** All Local Boards of Health and health officers shall make such investigations and reports, and obey such directions as to infectious diseases, as shall be directed by the State Board of Health. And any member of any Board of Health, or health officer, who shall neglect to perform the duties required of him under the provisions of this act, or any other act relating to the duties of the Boards of Health or health officers of this state, or who shall

neglect or refuse to obey any reasonable directions as to infectious diseases as shall be directed by the State Board of Health shall be liable, upon conviction in any court having competent jurisdiction, to be fined in a sum not less than twenty-five (25) dollars, or more than one hundred (100) dollars, and shall become disqualified from holding the office of a member of the Board of Health.

Sec. 11. When any Local Board of Health are of the opinion that the cleansing and disinfection of any house, building, car, vessel or vehicle, or any part thereof, and of any articles therein likely to retain infection, would tend to prevent or check infectious disease, it shall be the duty of such authority to give notice in writing to the owner or occupier of such house, vessel or vehicle, or part thereof, requiring him to cleanse and disinfect such house, vessel or vehicle, and the said articles within a time specified in said notice. If the person to whom notice is so given fails to comply therewith, he shall be liable to a fine of not less than twenty-five (25) dollars nor more than one hundred (100) dollars for every day during which he continues to make default, and said Board shall cause such house, vessel or vehicle and articles to be cleansed and disinfected, and may recover the expenses incurred, and said fine and costs of prosecution in a civil action before any justice of the peace or court having jurisdiction in like cases, which sum when recovered shall be placed to the credit of a special fund for the purpose of said Local Board of Health [to be used] by said Board for general expenses. *Provided*, that where the owner or occupier of any such house, vessel or vehicle is from poverty or otherwise unable in the opinion of said Local Board effectually to carry out the requirements of said Board in said notice, such authority may, without enforcing such requirements on such owner or occupier, with his consent, cleanse and disinfect such premises and articles and defray the expenses thereof.

Sec. 12. Any Local Board may direct the destruction of any bed or bedding, clothing, carpets or other articles which have been exposed to infection from contact with infected persons or articles, and may allow compensation for the same, or may provide a proper place, with all necessary apparatus and attendance for the disinfection of such articles and may cause any articles brought for disinfection to be disinfected thereby, and said Board may provide and maintain when necessary, a carriage or carriages suitable for the conveyance of such articles or of persons suffering under any infectious disorder, and may pay the expense of conveying therein any person so suffering to a hospital or other place of destination.

Sec. 13. Where any suitable hospital or place for the reception of the sick is provided within the district of any Local Board, or within a convenient distance of such district, any person who is suffering from any dangerous infectious disorder and is without proper lodging or accommodation, or lodged in a room occupied by more than one (1) family, or is on board any vessel, cars or other vehicle, may on a certificate signed by a qualified medical practitioner or the executive officer of said board, and with the consent of the superintending body of such hospital or place, be removed by order of any justice to such hospital or place at the cost of the local district; and any person so suffering, who is lodged in any common lodging or boarding house, may, with the like consent and on a like certificate, be so removed by order of the local board. An order under this section may be addressed to such constable or officer as the justice or local authority making the same may think expedient, and any person who wilfully disobeys or obstructs the execution of said order shall be liable to a fine not exceeding fifty dollars (\$50), to be recovered on criminal complaint, and the sum so recovered shall be paid over to said board for general expenses thereof.

Sec. 14. The State Board of Health may, by order, require any two (2) or more Local Boards to act together for the purposes of the provisions of this act, for the prevention of epidemic diseases.

Sec. 15. When any person coming from abroad, or residing in any town, village, borongh or city within this state, is infected, or lately has been infected, with the small pox or other contagious disease dangerous to the public health, the board of health of the town, village, borongh or city where such sick or infected person is, may immediately cause such person to be removed to a separate house, if it can be done without danger to his health, and shall provide for such person or persons, nurses, medical attendance and other necessaries, which shall be a charge in favor of such town, village, borongh or city upon the person so provided for, his parents, guardian or master, if able; otherwise upon the county in which he has a legal settlement, or upon the state if such person be a non-resident of the state, and has no property within the state, in which latter case the bills for such expenses shall be paid only after being audited and approved by the State Board of Health and by the Governor, and said bill shall be allowed only on condition that the Local Board of Health shall have promptly, on the appearance of such disease, notified the State Board of Health thereof, and shall have followed the instructions and regulations of said State Board given with respect to the care and expense in the case or cases in reference to which said bills were incurred, and further shall file satisfactory evidence to said State Board that such person or persons were non-residents of the state and have no property within the same. The town, village, borongh or city, as the case may be, may recover in a civil action against the person or persons, or the county chargeable under this section.

Sec. 16. If such infected person cannot be removed without danger to his health, the Board of Health shall make provision as directed in the preceding section for such person in the house where he may be and in such case they may cause the persons in the neighborhood to be removed, and (may take such other measures as they) may deem necessary for the safety of the inhabitants.

Sec. 17. When a disease dangerous to the public health breaks out, the board shall immediately provide such hospital or place of reception for the sick and infected as is judged best for their accommodation, and the safety of the inhabitants, which shall be subject to the regulations of the Board; and the Board may cause any sick and infected persons to be removed thereto, unless his condition will not admit of such removal without danger to his health, in which case the house or place where he remains, shall be considered as a hospital and with all its inmates, subject to the regulations of the Board.

Sec. 18. (It) shall be the duty of all Local Boards of Health, whenever they are informed that there is a case of small-pox, scarlet fever, diphtheria or other infectious or contagious disease within the territory over which it has jurisdiction, to immediately examine into the facts of the case, and if the disease appears to be of the character above specified, they shall adopt such quarantine and sanitary measures as may in their judgment tend to prevent the spread of said disease in its locality, subject to be modified by the State Board of Health, and shall immediately notify the Secretary of said State Board, of the appearance of such disease and the measures adopted by said Local Board in relation thereto.

Sec. 19. And said Boards of Health shall have power to forbid, by notices posted upon the entrances to premises where there may be patient sick with such disease, any person, except the medical attendants and spiritual advisers, from going to or leaving said premises without their permission, or carrying or causing to be carried, any material whereby said disease may be conveyed, until after said disease has abated and the premises, dwelling and clothing have been rendered free from disease by such disinfecting means as the Board may direct; and if said Board shall be informed that the above, or any reasonable or sanitary

measres which they have adopted and made public, is or has been violated, then the said Board may cause said offender against this act to be apprehended and brought before an officer having jurisdiction; and said offender shall, upon conviction, be liable to a fine in the sum of not less than five dollars (\$5) nor more than twenty-five dollars (\$25) for any violation under this act. Any member of any Board of Health who shall neglect his duties under the provisions of this act shall be liable, upon conviction in a court having competent jurisdiction, to be fined in a sum not less than twenty-five dollars (\$25) nor more than one hundred dollars (\$100) for the first offense; and for conviction for violation of this act the second time, shall, in addition to the fines already provided, become disqualified from holding the office of, or to which is attached the duties of a member of a Board of Health.

SEC. 20. All fines collected under this act shall be placed to the credit of a special fund of the city, village or town in which the offense is committed for the use and expenses of said Board. That every physician shall report to the Local Board of Health, in writing, every person having a contagious disease, and the state of his or her disease, and his or her place of dwelling, and name if known, which such physician has prescribed for or attended for the first time since having a contagious disease, or since the discovery of the same to be contagious, during any part of the preceding twenty-four (24) hours; but not more than two (2) reports shall be required in one (1) week concerning the same person; but every attending physician thereat must see that such report is or has been made by some attending physician.

SEC. 21. That it shall be the duty of each and every practicing physician in this state to report in writing to the Local Board of Health the death of any of his patients who shall have died of contagious or infectious disease, within twenty-four (24) hours thereafter, and to state in such report the [specific] name and type of such disease.

SEC. 22. That every keeper of any private house, boarding-house or lodging-house, and every inn keeper and hotel keeper shall, within twenty-four (24) hours, report in writing to the Local Board of Health the same particulars required of any physician in the preceding section concerning any person being at any of the aforesaid houses and hotels, and attacked with any contagious disease dangerous to the public health.

SEC. 23. That it shall be the duty of every person knowing of any person sick of any contagious disease dangerous to the public health, and the duty of every physician hearing of any such sick person, who he shall have reason to think requires the attention of the Local Board, to at once report the facts to the Board in regard to the disease, condition and dwelling place or position of such sick person.

SEC. 24. That no person shall within the limits of any town, city or village within this state, without a permit from the Local or State Board of Health, carry or remove from one (1) building to another, or from a vessel to the shore, or any railway cars, any sick person of any contagious disease, or the body of any person having died of contagious disease; nor shall any person, by any exposure of any individual sick of any contagious disease, or of the body of such person, or by any negligent act connected therewith, or in respect to the care and custody hereof, or by a needless exposure of himself, cause, or contribute to or promote the spread of disease from any such person or from any dead body.

SEC. 25. That every person being the parent or guardian, or having the care, custody or control, of any minor or other person, shall, to the extent of any means, power or authority of said parent, guardian or other person, that could properly be used or exerted for such purpose, cause and procure such minor or person under control to be so promptly, frequently and effectively vaccinated that such minor or individual should not take, or be liable to take the small pox.

SEC. 26. That no principal, superintendent or teacher of any school, and no parent, master or guardian of any child or minor, having the power and authority to prevent, shall permit any child or minor having scarlet fever, diphtheria, small-pox or any dangerous, infectious or contagious disease, or any child residing in any house in which any such disease exists, or has recently existed, to attend any public or private school until the Board of Health of the town, village, borough or city shall have given its permission therefor; nor in any manner to be unnecessarily exposed, or to needlessly expose any other person to the taking or to the infection of any contagious disease.

SEC. 27. That no person shall allow to be retained unburied the dead body of any human being for a longer time than four (4) days, or where death has been caused by a contagious disease for a longer time than twenty-four (24) hours after the death of such person, without a permit from the Local Board of Health, which permit shall specify the length of time during which such body may be retained unburied; and when death has been caused by a contagious disease the body shall, if directed by said Board, be immediately disinfected in such a manner as may be directed by said Board and enclosed in a tightly sealed coffin, which shall not thereafter be opened, and the funeral of such person shall be strictly private and in the removal thereof for burial or otherwise bearses or such other vehicles as may be authorized by said Board only shall be employed.

SEC. 28. Said Boards of Health may employ all such persons as shall be necessary to carry into effect the provisions of this act and the regulations duly established by said Boards as herein provided, and may fix their compensation. The said Boards shall have power to employ physicians and provide necessaries for persons in cases of poverty, and generally to pay such expenses as are necessarily incurred by them in taking precautions which they may deem necessary to the public health.

SEC. 29. All expenses so incurred for the control of infectious diseases, etc., by any Town, or Village Board of Health, shall hereafter be authorized by the county commissioner of the district wherein such town or village is situated, and when so authorized shall be audited by the county commissioners, and when so audited, paid out of the county treasury by orders on the treasurer, drawn by the county auditor, and paid out of the general revenue fund of the county, as other claims against the county are paid. All expenses incurred by any City Board of Health, shall, in the first instance, be borne by and paid out of the city treasury. The proper authorities of said city shall certify the amount required to reimburse said city to the county auditor at the time of certifying other taxes, and such auditor shall extend on the tax list of the county a tax sufficient to pay the amount so certified, which tax shall be collected as other taxes and passed over to the treasurer of such city. As amended by Chap. 178, Laws of 1889. Approved April 24, 1889.

SEC. 30. Any person who shall willfully violate any of the provisions of this act, or of any regulations duly made and published by any of the Boards of Health herein mentioned—the penalty for which is not herein specifically provided for—shall be guilty of a misdemeanor; and upon conviction thereof, shall be subject to a fine not to exceed one hundred (100) dollars or imprisonment not to exceed thirty (30) days, or both such fine and imprisonment. All amounts so collected shall be paid to the town, village or city treasurer and placed to the credit of a special fund for the purposes and expenses of the said Local Board of Health.

SEC. 31. This act shall take effect and be in force from and after its passage; and all acts and parts of acts inconsistent with this act are hereby repealed.

Approved March 3, 1883.

**AN ACT TO PREVENT THE SPREAD OF CONTAGIOUS OR INFECTIOUS DISEASES AMONG "CATTLE," HORSES AND OTHER DOMESTIC ANIMALS.—CHAPTER 200, GENERAL LAWS OF 1885.**

*Be it enacted by the Legislature of the State of Minnesota:*

**S**ECTION 1. The Local Board of Health of towns, villages and cities, in case of existence in this State of the disease called Pleuro-Pneumonia among cattle, or Farcy or Glanders among horses, or any other contagious or infectious disease among domestic animals, shall cause the animals in their respective towns, villages or cities, which are infected, or which have been exposed to infection, to be secured or collected in some suitable place or places within their respective towns, villages or cities, and kept isolated; and when taken from the possession of their owners one-fifth (1-5) of the expense of their maintenance shall be paid by the town, village or city wherein the animal is kept, and four-fifths (4-5) by the State; such isolation to continue as long as the existence of such disease or other circumstances may render it necessary.

SEC. 2. The said Local Boards of Health, when any such animal is adjudged by a veterinary surgeon or physician, by them selected, to be infected with any contagious or infectious disease, may, in their discretion, order such diseased animal to be forthwith killed and buried at the expense of such town, village or city.

SEC. 3. The said Local Boards of Health may cause all such animals that have been within the State for six (6) months next preceding the adjudication mentioned in section two (2) to be appraised by three (3) competent and disinterested men under oath, at the value thereof at the time of the appraisalment, and in making such appraisalment the appraisers shall take into consideration the fact of the existence of such disease, and the amount of the appraisalment shall be paid as provided in section one (1), except as provided in section fifteen (15) of this act.

SEC. 4. The said Local Boards of Health may, within their respective towns, villages and cities, prohibit the departure of animals from any inclosure, or exclude animals therefrom.

SEC. 5. The said Local Boards of Health may make regulations in writing to regulate or prohibit the passage from, to, or through their respective towns, villages or cities, or from place to place within the same, of any cattle or other domestic animals, and may arrest and detain, at the cost of the owners thereof, all animals found passing in violation of such regulations, and may take all necessary measures for the enforcement of such prohibition, and also for preventing the spread of any disease among the animals to their respective town, village or city, and the immediate vicinity thereof.

SEC. 6. Such regulations shall be recorded upon the records of their respective towns, villages and cities, and shall be published in such towns, villages and cities, in such manner as may be provided in such regulations.

SEC. 7. Any person disobeying the orders of said Local Boards of Health, made in conformity with the preceding provisions, or driving or transporting any animals contrary to the regulations made, recorded and published as aforesaid, shall be punished by a fine of not less than one hundred (100) dollars, nor exceeding five hundred (500) dollars, or by imprisonment of not less than thirty (30) days, nor exceeding one (1) year.

SEC. 8. Whoever knows or has reason to suspect the existence of any such disease among the animals in his possession, or under his care, shall forthwith give notice thereof to the said Local Boards of Health of the town, village or city where such animals are kept, and for failure so to do, shall be punished by a fine of not less than fifty (50) dollars, nor exceeding five hundred (50) dollars, or by imprisonment of not less than thirty (30) days or more than (1) year.

SEC. 9. Any member of any Local Board of Health who neglect or refuse to carry into effect the preceding provisions shall be punished by a fine of not less than one hundred (100) dollars, nor more than five hundred (500) dollars for each day's neglect.

SEC. 10. When the State Board of Health make and publish any regulations concerning the extirpation, care or treatment of animals infected with, or which have been exposed to, any contagious disease, such regulations shall supersede those made by the Local Boards of Health; and said Local Board of Health shall carry out and enforce all orders and directions of the State Board of Health to them directed.

SEC. 11. The State Board of Health, shall have all the power and authority herein conferred upon Local Boards of Health.

SEC. 12. The Local Boards of Health, within twenty-four (24) hours after they have notice that any domestic animals in their respective towns, villages and cities are infected with or have been exposed to any such disease, shall give notice thereof in writing to the State Board of Health.

SEC. 13. The State Board of Health may make all necessary regulations for the quarantine of such animals, and extirpation of such disease, and may direct Local Boards of Health to enforce and carry into effect all such regulations as may from time to time be made for that end; and any member of any Local Board of Health who refuses or neglects to enforce or carry out any regulation of the State Board of Health shall be punished by a fine of not less than one hundred (100) dollars nor more than five hundred (500) dollars for every offense.

SEC. 14. The State Board of Health, when, in their judgment the public requires it, may cause to be killed and buried any domestic animals which are infected with, or have been exposed to, such disease; and except, as provided in the following section, shall cause such animals to be appraised in the manner provided above, and the appraised value of such animals shall be paid, one-fifth (1-5) by the town, village or city in which such animals were kept, and the remainder by the State.

SEC. 15. In all cases of farcy or glanders, the State Board of Health, having condemned the animal infected therewith, shall cause such animal to be killed, without an appraisement or compensation to the owner thereof, but may pay the owner an equitable sum for the killing and burial thereof.

SEC. 16. Any person who fails to comply with the regulation made, or an order given by the State Board of Health, shall be punished by fine not exceeding five hundred dollars (\$500) or by imprisonment not exceeding one (1) year.

SEC. 17. All appraisements made shall be in writing and signed by the appraisers and certified by the Local Boards of Health or State Board of Health respectively, to the governor and to the treasurer of the several towns, villages and cities wherein the cattle appraised were kept.

SEC. 18. The State Board of Health may examine, under oath, all persons believed to possess knowledge of material facts concerning the existence or dissemination or danger of dissemination of disease among domestic animals; and for this purpose shall have all the power vested in justices of the peace to take depositions and to compel witnesses to attend and testify. All costs and expenses incurred in producing the attendance of such witnesses shall be

certified by the State Board of Health and paid from the treasury of the State upon being certified to and approved by the governor.

**SEC. 19.** Whenever animals are exposed to contagious diseases or killed by an order of the State Board of Health, and upon a post-mortem examination are found to have been entirely free from disease, the State Board of Health shall cause the same to be sold under their direction, first giving to the purchaser notice of the facts, and if said purchaser, or any other person, shall sell said slaughtered animals, or any part thereof, he shall in like manner give notice to the parties to whom such sales are made, and the proceeds of the sales, made by order of the State Board of Health, shall be applied in payment of the appraised value of said animals.

**SEC. 20.** Whoever violates any of the provisions of the preceding section shall be punished by fine not exceeding one hundred dollars (\$100) and the cost of prosecution.

**SEC. 21.** The State Board of Health shall keep a full record of their doings and report the same to the legislature unless sooner required by the governor.

**SEC. 22.** The State Board of Health may, by order, require any two (2) or more Local Boards to act together for the purposes of this act.

**SEC. 23.** The sum of three thousand dollars, (\$3,000,) or so much thereof as necessary is hereby annually appropriated for the payment of expenses incurred by the State in enforcing this act; said expenses to be approved by the State Board of Health and by the governor.

**SEC. 24.** This act shall take effect and be in force from and after its passage.

Approved March 7, 1885.

### *AN ACT TO REGULATE OFFENSIVE TRADES AND EMPLOYMENTS—CHAP. 222, LAWS OF 1885.*

*Be it enacted by the Legislature of the State of Minnesota:*

**SECTION 1.** The Board of Health of each town, village or city in this State, shall, from time to time, assign certain places within such town for the exercise of any trade or employment which is a nuisance or hurtful to the inhabitants, or dangerous to the public health, or the exercise of which is attended by noisome or injurious odors, or is otherwise injurious to the estates of such inhabitants; and may prohibit the exercise of such trade or employment in places not so assigned. Said Board may also forbid such exercise within the limits of the town or particular locality thereof. All such assignments shall be entered in the records of the town and may be revoked when said Board shall think proper.

**SEC. 2.** It shall not be lawful for any person or corporation to exercise within any town, village or city, any trade or employment mentioned in section one (1) of this act, without having first obtained from the Board of Health of such town, village or city, permission so to do, and the assignment provided in said section; and any person or corporation violating the provisions of this section shall forfeit and pay the sum of fifty dollars (\$50) for each and every day that any such trade or employment is exercised or carried on, to be recovered in any court having jurisdiction thereof, and sitting within the county where any such trade or employment is exercised or carried on; such action shall be commenced and prosecuted by such Board in its name and for its benefit.

**SEC. 3.** When any assignment mentioned in section one (1) hereof shall be revoked, said Board shall serve upon the occupant, corporation or person having charge of the premises where such trade or employment is exercised a written notice of such revocation. If the person or corporation upon whom such order is served, for twenty-four (24) hours after such service, refuses or neglects to obey the same, said Board shall take all necessary measures, by injunction, or otherwise, to prevent such exercise; and the person or corporation so refusing, or neglecting, shall forfeit and pay the sum of one hundred dollars (\$100) for each and every day that such trade or employment shall be exercised after the service of such notice, to be recovered in the manner and by the party and for the benefit as provided in section two (2) hereof.

**SEC. 4.** Any person or corporation aggrieved by any order of such Board, may appeal therefrom to the district court of the county in which such trade or employment is exercised. Such appeal shall be taken by the filing of such aggrieved person or corporation, within five (5) days after the service of such order, in the office of the clerk of said court, of a notice of such appeal, together with a bond in the sum of not less than five hundred (500) dollars, with two (2) or more sureties, to be approved by the judge of said court, conditioned for the prosecution of such appeal to judgment and for the payment of all costs and expenses that may be awarded against such appellant, and by the service of a copy of such notice and bond upon such Board. If such appeal be taken within twenty (20) days next before the time appointed for holding a general term of said court within said county, the same shall be heard at such time as other civil causes, and at the request of either party, shall be tried by jury. If such appeal is taken more than twenty (20) days before any such term, the judge shall, by order, appoint a time and place for the hearing of such appeal, and shall, if the appellant demand a trial by jury, direct the sheriff of such county, to summon a jury of twelve (12) persons having the qualifications of jurors, to appear at the time and place named in said order, to serve as jurors in said cause. Any person so summoned may be challenged as in civil actions. If a sufficient number of such persons so summoned do not appear, the court shall require talesmen to be called as in other cases, and said appeal shall be tried as other civil causes. During the pendency of such appeal, such trade or employment shall not be exercised contrary to the order of said Board; and upon the violation of any such order the appeal shall forthwith be dismissed. Upon the return of the verdict of the jury the court may either alter or amend the order of the Board or affirm or amend it in full, to conform to such verdict. If the matter be tried by the court it shall have and exercise the same power.

**SEC. 5.** Any person injured, either in his comfort or the enjoyment of his estate, by the exercise of any such trade or employment may have and maintain an action for the damages sustained thereby.

**SEC. 6.** When it appears on a trial before the district court for the proper county, upon a complaint made by any person that any place or building assigned as provided in section one (1) of this act has become nuisance by reason of offensive smells or exhalations proceeding from the same, or is otherwise hurtful or dangerous to the neighborhood, or to travelers, said court may revoke such assignment and prohibit the further use of such place or building for the exercise of either of the aforesaid trades or employments, and may cause such nuisance to be removed or prevented.

**SEC. 7.** When any building or premises within any city, village or town are occupied or used for the exercise of any trade or employment aforesaid, the State Board of Health shall, upon application made to it for that purpose, appoint a time and place for hearing the parties, and give notice of not less than ten (10) days thereof to the complainant and the party against whom such application is made, and after such hearing may, if in its judgment the public health or the public comfort and convenience so require, order any person to desist and cease

from further carrying on such trade or occupation in such building or premises; and any person or corporation thereafter continuing to occupy such building or premises, shall forfeit and pay the sum of one hundred (100) dollars for every day of such occupancy or use, to be recovered in any court having jurisdiction thereof by action commenced and prosecuted in the name of the Board of Health of such city, village or town, and for its use and benefit. Any person or corporation aggrieved by any such order, may appeal therefrom, and said appeal shall be taken, prosecuted and determined in the same manner provided in section four (4) of this act. During the pendency of such appeal, such trade or employment shall not be exercised contrary to the orders of said State Board, and upon the violation of [any] such order, the appeal shall forthwith be dismissed.

SEC. 8. The district court, or the judge thereof, may issue an injunction or other proper writ, to enforce the orders of said State Board, issued under the provisions of this act.

SEC. 9. Nothing in this act contained shall be construed as to impair any other remedies which may exist in cases of nuisance.

SEC. 10. This act shall take effect and be in force from and after its passage  
Approved March 7, 1885.

#### *AN ACT TO PREVENT THE POLLUTION OF RIVERS AND SOURCES OF WATER SUPPLY.—CHAPTER 225, LAWS OF 1885.*

*Be it enacted by the Legislature of the State of Minnesota.*

**S**ECTION 1. No sewage, drainage or refuse or polluting matter of such kind as either by itself or in connection with other matter will corrupt or impair the quality of the water of any spring, well, pond, lake, stream or river for domestic use, or render it injurious to health, and no human or animal excrement shall be placed in or discharged into, or placed or deposited upon the ice of any pond, lake, stream or river, used as a source of water supply by any town, village or city; nor shall any such sewage, drainage, refuse, or polluting matter or excrement be placed upon the banks of any such pond, lake, stream or river, within five miles above the point where such supply is taken, or into any feeders or the banks thereof, of any such pond, lake, stream or river;

SEC. 2. The State Board of Health shall have the general supervision of all springs, wells, ponds, lakes, streams or rivers used by any town, village or city as a source of water supply, with reference to their purity, together with the waters feeding the same, and shall examine the same from time to time, and inquire what, if any, pollution exist, and their causes. In case of a violation of any of the provisions of section one (1) of this act, said Board may appoint a time and place for hearing parties to be affected, and shall give due notice thereof, as hereinafter provided, to such parties, and after such hearing, if in its judgment the public health requires it, may order any person or corporation, or municipal corporation to desist from the acts causing such pollution, and may direct any such person or corporation to remedy the pollution, or to cleanse or purify the polluting substance, in such a manner and to such a degree as shall be directed by said Board, before being cast or allowed to flow into the waters thereby polluted, or placed or deposited upon the ice or banks of any of the bodies of water in the first section of this act mentioned. Upon the application of the proper officers of any town, village or city, or of not less than legal voters of any such town, village or city, to said State Board, alleging the pollution of the water supply of any such town, village or city, by the violation of any of the provisions of this act, said State Board shall investigate the alleged pollution, and shall appoint a time and place, when and where it will hear and examine the matter, and shall give notice of such hearing and examination to the complainant, and also to the person or corporation, or municipal corporation alleged to have caused such pollution, and such notice shall be served not less than ten (10) days prior to the time so appointed, and shall be served in the same manner that now is, or hereafter may, be by law provided for the service of a summons in a civil action in the district court. Said Board, if in its judgment any of the provisions of this act have been violated, shall issue the order or orders already mentioned in this section.

SEC. 3. The district court, or the judge thereof, may, upon the complaint of said State Board, or of the proper authorities of any town, city or village whose sources of water supply shall be so polluted, issue an injunction to enforce the orders of said State Board.

SEC. 4. Such orders of the State Board shall be served upon the persons, corporations, or municipal corporations found to have violated any of the provisions of this act, and any party aggrieved thereby, shall have the right to appeal to the district court of the county in which is situate the town, village or city whose source of water supply is found to have been polluted, and such aggrieved party shall have the right to a trial by jury in the same manner as in a civil action in said court. During the pendency of the appeal, the pollution against which the order has issued, shall not be continued, contrary to the order of the State Board, and upon the violation of the order the appeal shall forthwith be dismissed.

SEC. 5. Any person, corporation or municipal corporation desiring to appeal from any such order of the State Board, shall, within thirty (30) days after the service upon him or it of a copy of such order, file in the office of the clerk of the district court of the proper county, a notice of such appeal, together with a bond in the sum of not less than two thousand (2,000) dollars, with two (2) sureties, to be approved by the judge of said court, conditioned for the prosecution of such appeal to judgment, and for the payment of all the costs and disbursements that may be adjudged against him or it therein, and shall, within three (3) days after such filing, serve a copy of such notice and bond upon the Secretary of said Board; and said Secretary shall, within ten (10) days thereafter, deliver such copies so served upon him to the mayor or other chief executive officer of any such city, village or town, whose source of water supply has been found to have been so polluted.

SEC. 6. Water boards, water commissioners, water companies, and the proper officers of any city, village or town, making use as a source of water supply, of any well, spring, pond, lake, stream, river, reservoir or well, within, or partly within, this State, and distributing the water thereof for public, domestic and general uses, shall, from time to time, and whenever required by said State Board, make returns to said Board, upon blanks to be furnished by it, of such matters as may be required by said Board and called for by such blanks, and any such water board, water commissioners, water company, or officers of any city, village or town, who shall, for the space of thirty (30) days after being furnished with such blanks, fail or neglect to make any such report so required, shall, for each and every such neglect or failure, forfeit and pay the sum of one hundred (100) dollars, for the use of the Local Board of Health, or the proper officers acting as such, of the city, town or village where such delinquent has its principal office. Said State Board shall, in the name of the State, prosecute in the district court of the proper county an action for the recovery of the penalty or forfeit herein imposed.

SEC. 7. This act shall take effect and be in force from and after its passage.

Approved March 7, 1885.

# An Act to Provide for the Collection of Vital Statistics.

*Be it enacted by the Legislature of the State of Minnesota.*

**S**ECTION 1.—The Clerk of each town, and the Health Officer of each village, borough or city in this State, shall obtain and register the following facts concerning the births and deaths occurring therein, separately numbering and recording the same in the order in which he obtains them, designated in separate columns, viz: In the registry of births, the date of birth, the name of the child (if it have any), the sex and color of the child, the names and places of birth of the parents, and the date of the record; in the registry of deaths, the date of death, [the name of the deceased,] the sex and color, the condition, whether single, widowed or married, [the age, place of birth,] the names and places of birth of the parents, the disease or cause of death, and the date of the record. The County Auditor of each County shall furnish each clerk or Health Officer within his County, at the expense of the County, a book in which to register the facts concerning the births and deaths a. above provided. Provided, however, that in cities of over 100,000 inhabitants, where the duties hereby imposed upon the Health Officer, have heretofore been imposed upon the City Clerk, the latter shall continue to perform the same and receive the compensation therefor.

SEC. 2.—Parents shall give notice to such Clerk or Health Officer, of the births and deaths of their children; every householder shall give like notice of every birth and death happening in his house; the oldest person, next of kin, shall give such notice of the death of his kindred; the keeper, or other proper officer, of every workhouse, poorhouse, reform-school, jail, prison, hospital, asylum, or other public or charitable institution, shall give like notice of any birth or death happening among the persons under his charge. Whoever neglects or refuses to give such notice for the period of ten (10) days after the occurrence of a birth or death, shall forfeit a sum not exceeding twenty (20) dollars, to be collected as other fines are collected by law.

SEC. 3.—Any physician having attended a person during his last illness, shall, within ten (10) days after the decease of such person, furnish for registration to such Clerk, or Health Officer, a certificate of the duration of the last illness, the name of the deceased, his age, the disease of which the person died, and the date of his decease. And any physician or midwife having attended a case of confinement, shall, within ten (10) days thereafter, furnish for registration to said Clerk or Health Officer, a certificate of the date of birth, sex and color of the child, with the names, dates and places of birth of the parents. If any physician or midwife neglects to make such certificate, he shall forfeit the sum of twenty-five (25) dollars, to be collected as other fines are collected by law.

SEC. 4.—Such Clerk, or Health Officer, shall, on or before the fifth (5) day of each month, transmit to the Secretary of the State Board of Health and Vital Statistics, upon blanks to be furnished by said Board, a certified copy of the registry of births and deaths which have occurred within such town, village, borough or city, during the calendar month immediately preceding. For obtaining, registering, and returning the facts herein required, such Clerk or Health Officer shall be entitled to receive from the County Treasury of his County, twenty-five (25) cents for each birth or death so obtained, registered and reported. And for neglect to perform such duties as herein required, he shall forfeit a sum not exceeding fifty dollars for each offense, to be collected as other fines are collected.

SEC. 5.—It shall be the duty of the State Board of Health and Vital Statistics, to prepare and furnish to such Clerks and Health Officers, suitable blanks and instructions for the making of the returns herein provided for. And the Secretary of said State Board of Health and Vital Statistics, shall, annually, on or before the fifteenth (15) day of January, of each year, transmit to the Clerk of the District Court, of each County, all of the said returns received by said Secretary from such Clerks or Health Officers, in such County during the year ending on the last day of the preceding December, together with his certificate showing the aggregate number of births and deaths so reported in such year by each such Clerk and Health Officer.

SEC. 6. The said Clerk of the District Court shall thereupon file the said returns so to him transmitted, in his office, and shall also issue to each such Town Clerk and Health Officer a certificate showing the amount due to them respectively, for the obtaining, registering and reporting the births and deaths aforesaid, as the same may appear from the said certificate of said Secretary of the State Board of Health and vital statistics. For all his said services, such Clerk of the District Court shall be entitled to receive from the County Treasurer of his respective county for recording such births and deaths, and making such abstract thereof as he may by law be required to make the sum of ten (10) cents for each such birth or death. And for his failure to perform any of the duties herein provided for such Clerk of the District Court, shall forfeit the sum of fifty (50) dollars, to be collected as other fines are collected.

SEC. 7.—The County Auditor of each County, upon the presentation to him of the aforesaid certificate of the Clerk of the District Court of his County, shall issue and deliver to each Clerk and Health Officer, respectively, his warrant upon the County Treasurer for the amount in said certificate stated to be due to such Clerk or Health Officer, and the County Treasurer upon the presentation of such warrant, shall pay the same to the person entitled thereto out of the general funds of the County Treasury.

SEC. 8.—To cover all Clerk hire, stationery and incidental expenses of the State Board of Health and Vital Statistics, under this act, the sum of one thousand (1,000) dollars shall be and hereby is annually appropriated.

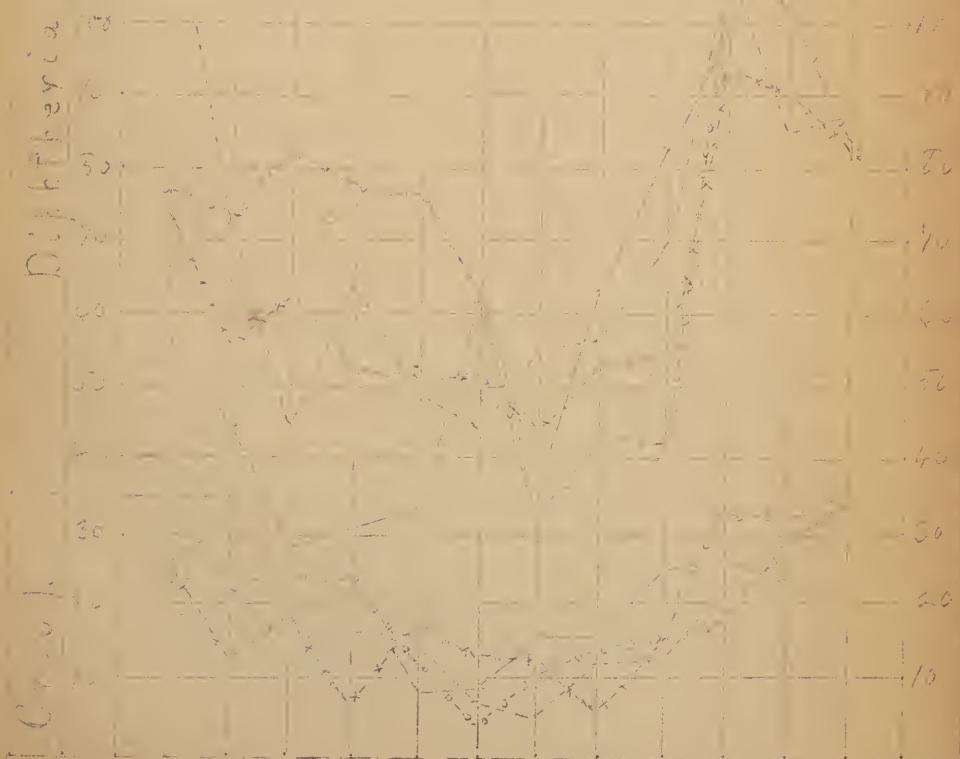
SEC. 9.—Sections 81, 82, 83, 84 and 85 of Chapter six (6) of General Statutes of 1878, and all other acts and parts of acts inconsistent with this act, are hereby repealed.

SEC. 10.—This act shall take effect and be in force from and after its passage.

Approved March 8th, 1887.

Males & Females - and Sexes - Deaths		Deaths		
Age	Number	1887	1888	1889
0-1 year	37	187	187	189
1-2 years	100	100	100	100
2-3 years	166	166	166	166
Mortality	2.2 to 2.4 years	1.65	1.65	1.65
by	12 months	270	225	208
Months	12 months	21.3	1.5	1.81

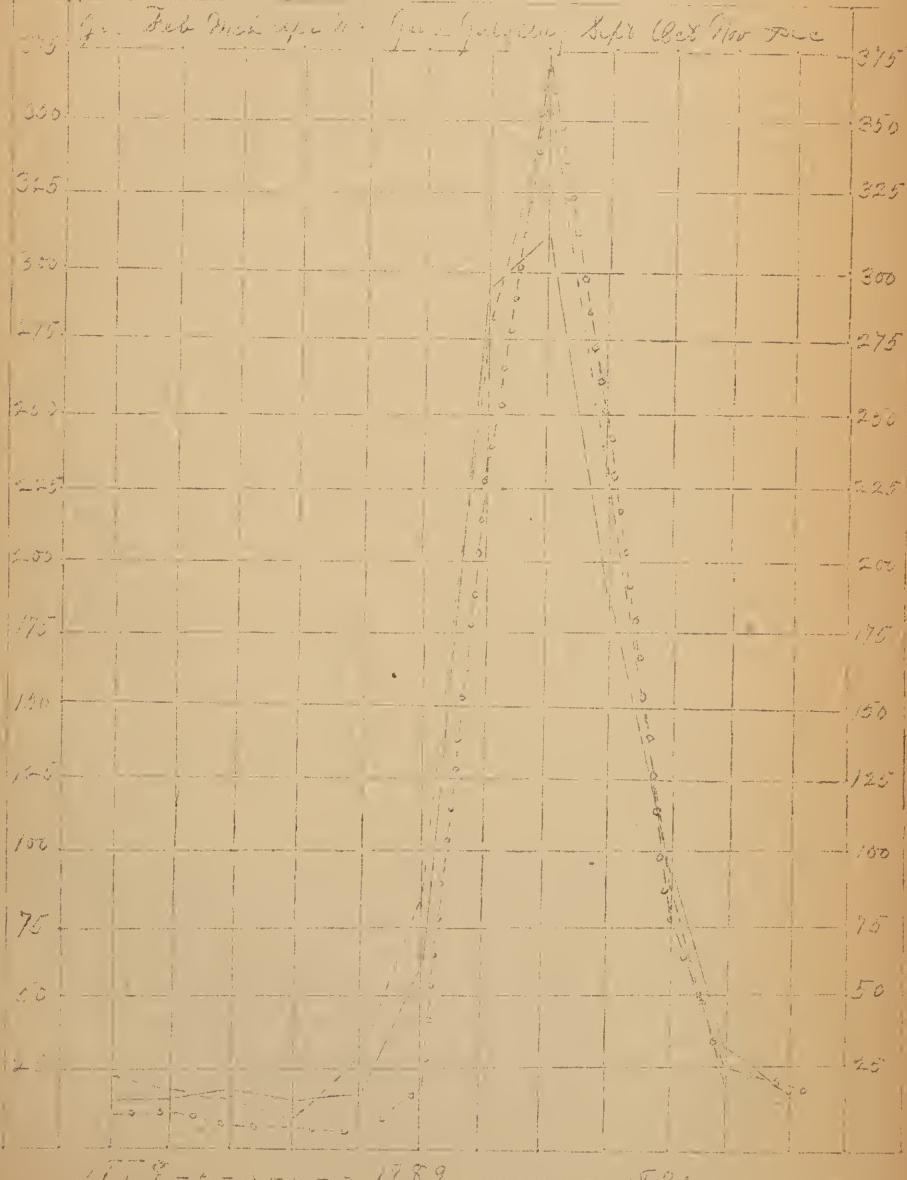
Jan Feb Mar Apr May June July Aug Sept Oct Nov Dec



1887 — 1888 — 1889 -o-o-o-o 1890 -x-x-x-



Statewide Statistic - Deaths.			
Parochial number of children 1888-90- 8/28/91	1888	1889	1890
Comparative death in each + 15091 14807 13474			
State rate of mortality { " Death of children } 10.41 11.5 10.44			
Mortality by months { % of deaths to all causes } 4.76 4.77 4.88			



1888-90-0-0-0 1889----- 1890-----



# PUBLIC HEALTH IN MINNESOTA.

OFFICIAL PUBLICATION OF THE STATE BOARD OF HEALTH  
AND VITAL STATISTICS,

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## INFECTIOUS DISEASES REPORTED DURING THE MONTH OF SEPTEMBER.

### DISEASES OF MEN.

#### SEPTEMBER.

Diphtheria .....	{ cases, .....	24
	{ deaths, .....	7
Scarlatina .....	{ cases, .....	23
	{ deaths.....	0

### DISEASES OF ANIMALS.

Cases of glanders remaining isolated or not accounted for Sept. 1.....	53
Reported during the month.....	4
Killed     "     " .....	0
Died     "     " .....	0
Released     "     " .....	0

Remaining isolated or not accounted for Oct. 1..... \*57

\* NOTE.—Most of these are cases exposed to possible infection, and isolated for further observation.

**D**ISTRIBUTION AND MORTALITY OF THE MORE IMPORTANT DISEASES IN MINNESOTA.—Month of September, 1890, (includes all September returns to October 20).

POPULATION, CENSUS OF 1890.

STATE.....	1,302,826
<i>First Class</i> (cities of over 100,000), St. Paul and Minneapolis.....	297,894
<i>Second Class</i> (cities of between 15,000 and 50,000), Duluth and Winona .....	51,323
<i>Third Class</i> (cities of between 5,000 and 15,000), Stillwater, St. Cloud, Mankato, Faribault, Red Wing and Rochester.....	44,732
Population living in 10 cities of over 5,000 people.....	393,969
Population living in cities, villages and townships of less than 5,000 people.....	907,857

(The Census Bureau has repeatedly promised the returns for the smaller civil divisions of the State, but, up to date, they have not been received).

TOTAL DEATHS FOR THE WHOLE STATE.

*From all causes.*—782 (441 males, 341 females); less than last month, or for any September since 1887, and less by 105 than the average of this month for four years mortality; at the rate of 7.3 to 1,000 living.

" *Diarrhoeal Diseases of Children.*—146 (79 males, 67 females), in 66 localities and 40 counties; more than in this month last year, but less than the average of four years.

" *Tuberculosis.*—70 (37 males, 33 females), in 40 localities and 29 counties.

" *Diphtheria.*—29 (16 males, 13 females), in 11 localities and 10 counties; the lowest September mortality in four years, and 11 less than the September average for that time.

" *Croup* (always isolated as Diphtheria).—But 2 deaths, less than any September record since 1887.

" *Measles.*—But two deaths.

" *Scarlatina.*—9 (2 males, 7 females), in 5 localities and 4 counties; twice that of this month in 1890, and greater than the September average of four years.

" *Enteric Fever (Typhoid, Nerve Fever).*—62 (35 males, 27 females), in 20 localities and 20 counties; a little higher than the average (59).

" *Pneumonia.*—21 (8 males, 13 females); less than the average (25).

Dividing the population into the two great classes—city and country—the following is the record for September:

*City Population*, 393,969, in 10 cities, and 30% of the whole.

Deaths from all causes, 416 (228 males, 188 females), 12.85 to 1,000 living;

*Village and Township Population*, 907,857, and 70% of the whole:

Deaths from all causes, 366 (213 males, 153 females), 4.5 to 1,000 living.

	In Cities		In Village and Country	
	Total Deaths	Deaths to 1,000 living	Total Deaths	Deaths to 1,000 living
Diarrhoeal Diseases of Children...	68	.12	78	1.04
Diphtheria.....	25	.77	4	.05
Tuberculosis.....	35	1.08	35	.47
Pneumonia.....	17	.55	4	.05
Enteric Fever.....	41	1.27	21	.28

Taking the city mortality alone, and by class, the following statistics are worked out:

	First Class.	Second Class.	Third Class.
Deaths from all causes.....	298 (160 M., 138 F.)	81 (48 M., 33 F.)	37 (20 M., 17 F.)
Diarrhoeal Diseases of Children.....	49 (27 M., 22 F.)	18 (9 M., 9 F.)	1 (1 M., 0 F.)
Tuberculosis.....	25 (10 M., 15 F.)	7 (6 M., 1 F.)	3 (2 M., 1 F.)
Diphtheria.....	11 (6 M., 5 F.)	None.	12 (7 M., 5 F.)
Pneumonia.....	14 (5 M., 9 F.)	1 (1 M., 0 F.)	2 (1 M., 1 F.)
Enteric Fever.....	29 (18 M., 11 F.)	10 (4 M., 6 F.)	2 (0 M., 2 F.)
Scarlatina.....	6 (2 M., 4 F.)	None.	None.
Croup .....	1 each.	None.	None.

Sixty-six per cent. of all deaths from Enteric fever in September occurred in four cities of over 5,000 inhabitants each, with a combined population of 339,841, but 26.1% of the total population of the State. (Minneapolis, 17; St. Paul, 12; Duluth, 10, and Mankato 2.)

Thirty-three per cent. of the deaths from this cause were in cities of less than 5,000 inhabitants, villages and townships, in which live 70% of the whole population. A single death in each of the cities of Fergus Falls and Hastings, the borough of Le Sueur, the villages of Cloquet and Adrian, and in 10 townships. In Whitewater township, Winona county, 3 deaths, and in Woodside township, Polk county, 2.

Of the 29 deaths by diphtheria during this month, 24 occurred in 9 cities containing but 29.49% of the population of the State (Stillwater 9; Minneapolis 8; Duluth 7; Winona, St. Cloud, Mankato and Faribault, but one each.)

In villages and townships with 70% of population there were but 4 deaths from this cause, and they in 3 townships.

#### SMALL-POX IN PROVINCE OF QUEBEC.

A SERIOUS epidemic is prevailing there of which the report of the Provincial Board of Health October 26, justifies the following statement:

The first cases were not reported to the Provincial Board. They occurred in a Quebec hospital, where there seems to have been a series of at least three cases, beginning with an employe about the harbor; he was followed by a hospital servant, who died. There followed him two nurses, who were sent away, one to a house in the city, the other to an adjoining vil-

lage. Sept. 8th, the positive evidence begins with a girl living two doors from the city house where the sick nurse was sent. She went to the hospital, but after isolation as suspected, escaped, crossed the river and took a train for Dalhousie, N. B.; thence by steamer to a village near her father's house. Soon after, it was discovered that persons exposed to her on the cars, on the steamer, in the village, and at home had the disease, and in turn infected others. And the inspector of the Provincial Board, returning to Quebec, found children sick with small-pox in the house whence the girl started. *Being unvaccinated, both these children died.* The shiftless carelessness of the Quebec Board of Health and the inexplicable conduct of the hospital authorities seem to be the plain causes of the following record, with a very great probability of more trouble ahead: From September 8 to October 26, 10 outbreaks of small-pox in 6 counties and with 85 cases of the disease, 16 deaths and 10 recoveries, leaving 59 cases still sick of the disease in 8 localities and 6 counties. Fortunately immigration this way is small, and not likely to be delayed by a stop at Quebec or Montreal. We shall watch this epidemic anxiously and beg our readers who "have no fear of small-pox now-a-days" to see how great a fire the little spark carried by one girl has already kindled, and the end not yet.

---

AMERICAN PUBLIC HEALTH ASSOCIATION.

KANSAS CITY MEETING, AUGUST 20, 21 and 23.

THE attendance was smaller than expected, but fair for date and place. The feature of greatest interest was the Mexican delegation, every State and the Nation represented. They were a fine body of men, mostly educated away from home, and quite cosmopolitan in their ways. They read several papers on sanitary subjects, in Spanish and English, and spoke to several subjects. They are likely to be prolific and voluminous writers, and will add new life and energy to the Association. They made so favorable an impression that their request for the next meeting in the City of Mexico was complied with, and the new President, Dr. Felix Formento, will have the delicate task of hearing both languages spoken at the same time and of serving as interpreter and intermediary between those who speak only one, and that not what the other fellow speaks. The Mexicans are better linguists than the Americans and more likely to master our language than we theirs.

A valuable paper read by Dr. Paquin upon the bacteriological dangers of calf vaccine, led to a statement of what this Board are doing in the production, distribution and use of calf-lymph. Our vaccine was selected in England and passed through thirty-nine healthy calves here, from whom about 2,000 persons were vaccinated with perfect success and no bad

results. An opportunity occurring this summer, the virus was taken back to England and tested beside the original stock, with which it was found to correspond perfectly. The conclusion of the Association was to advise that vaccine production be put under the direction of the State Boards of Health. Minnesota took that step and got to work more than a year ago, and if other State Boards will follow her example vaccination can be healthfully re-established in professional and popular esteem and use.

At the request of representative members in attendance, the writer related the important advance which this Board has secured in obtaining from the National Immigration Bureau information of all immigrants who have had, or been exposed to, infectious disease at ports of departure, or on the voyage, and whose destination is Minnesota. This includes names, number and point of destination in the State. As we have had obligatory notification *within* the State since 1885, this information, from *without* the country, comes soon enough to enable this Board to notify the local boards of health directly concerned, enabling them to meet, and if need be, care for the immigrant. The plan has proven a decided help in the control of these diseases. It began in June, 1891.

It was determined to make the annual meeting for 1893, as far as possible, an International Conference of Public Health, and to hold it in Chicago, and a committee was appointed to arrange for it. The proposition of the Secretary of this Board to the International Congress of Hygiene and Demography of London, to meet in Chicago in 1893, though backed by the representative of the Columbian Exposition, was declined through the influence of the Hungarian and French delegates. It was, after all, to our advantage that the offer was not accepted. The invitation was heartily supported by all the American delegates, and was so popular in England that a new effort was made, after adjournment, to accept it, which failed for the same reason.

The field is now open and no other body has so clear a duty as the American Public Health Association to occupy it, as it proposes to do. There will be no difficulty in getting a full representation from every State and Nation in the two Americas. Our Mexican brethren will use every influence in Central and South America, and will have strong delegations to the Association in their capital city in November, 1892. Representative American members of the Association will spend the coming winter in South and Central America and be able to report progress on their return. Meantime, the committee to arrange for the Chicago meeting have a responsible and delicate duty, of which more hereafter. There is no doubt that a large delegation of our English friends will come, and give us

an opportunity to repay, partially, the heavy debt of hospitality which they have piled up against us. H.

#### INFECTIOUS DISEASES OF MEN.

IS THERE ANY SEASONAL CORRESPONDENCE IN MORTALITY BETWEEN DIPHTHERIA AND ENTERIC FEVER? A question raised at the International Congress of Hygiene last August in London and closely related to the other question of the etiology of the diseases themselves. Our Graphic Chart for this month shows the average monthly mortality for the last four years of both diseases comparatively. Any one interested will find the annual prevalence, by months for Enteric fever in the graphic chart of No. 9, Vol. vi, and for Diphtheria in the last No. (6 of Vol. vii.)

#### PERIOD OF INCUBATION, AND DURATION OF INFECTION OF INFECTIOUS DISEASES.

CLEMENT DUKES, "HEALTH AT SCHOOL," ED. OF 1887.

	Days after Ex- posure.	Possible range.	Incubation		Duration of Infection—	
			With Efficient disinfection.	No Efficient disinfection.		
Scarlatina.....	4th day	1—7 days	5 to 6 weeks		2 months	
*Diphtheria....	2d "	2—5 "	*3 "		*2 "	
Erysipelas.....	4th "	1—7 "	3 4 "		1 "	
Small-pox.....	12th "	1—14 "	av. 6 "		2 "	
Chicken-pox ...	14th "	10—18 "	av. 3 "		1 "	
Enteric fever ...	21st "	1—28 "	1 to 3 months		2 "	
Measles.....	eruption 14th "	10—14 "	2 to 4 "		1 "	
Rothelein (Epi- {	14th "	12—20 "	10 to 14 "		1 "	
demic Roseola. }						
Mumps.....	19th "	16—24 "	8 to 14 "		1 "	
Whoop. cough..	14th "	7—14 "	6 "		2 "	

\*The duration of the infectiousness of Diphtheria is now proved to be at least three weeks, so that should be the shortest period of isolation of a case after apparent complete recovery, and with no disinfection whatever it should be at least three months. The changes are from two weeks to three, and one month to two.

#### DISEASES OF DOMESTIC ANIMALS.

HEALTHY MEAT IN THE MINNESOTA AND OTHER AMERICAN MARKETS, as affected by the veterinary inspections of stock and meats under the direction of the Secretary of Agriculture.

The investigation reported as begun in our last number is progressing. The following statements are believed to be correct:

1st. That the Secretary of Agriculture forbids his inspectors to explain their methods even to health officers directly interested, or to discuss the diseases of cattle in a paper to be read before a scientific body in the light of their experience as inspectors.

2d. It appears further that he has issued no specific instructions to his inspectors as to what they are to condemn, but that they are permitted to use their own judgment e. g. as to the stage of tuberculosis or actinomycosis (lumpy jaw) which

is sufficient to condemn meat, or meat products, from cattle so diseased.

3d. *That while trichinous pork is rigidly excluded from the foreign market it is not excluded from the American, but is permitted (not forbidden) to be sold there, probably as preserved meat.* It also seems probable that 3 per cent of the hogs slaughtered for the foreign market are condemned for trichinæ, and that they may get into inter-state commerce, though known to be diseased.

4th. It appears that the Secretary has no authority to destroy condemned stock or meat products, but only to expel them from the premises where found, to be disposed of as the law of the State directs. It has not yet been discovered that the Secretary has notified any competent State or municipal authority of the condemnations made by his inspectors, and that therefore, except where the dealers have voluntarily assumed the destruction of it, there is no means whereby the Secretary, or any one else, can be assured that such condemned cattle or meat do not get on the American market.

No such notice is given to the Live Stock Commissioners of Illinois or the Commissioners of Health of Chicago up to Oct. 28, 1891.

This inspection is a voluntary matter, any way, with dealers, and not all call for it, and none, so far as we can ascertain, who provide for the American trade alone.

It seems very probable that in proportion to the efficiency of the inspection of stock and meats for foreign consumption, and to the amount of such business, will be the danger and the amount of such meat thrown on the home markets, for there are already establishments, in the great stock centres, which buy and kill animals which are known to be unable to pass the inspection for the foreign consumer, and the meat of such cattle goes on to the home market as healthy, and for human food. Correspondence has as yet failed to get satisfactory explanation from the Bureau of Animal Industry. Illinois authorities are corresponding with the Secretary on some of the subjects mentioned. They are too important to be lost sight of until thoroughly cleared up.

**MINNESOTA WEATHER SERVICE.—REPORT FOR SEPTEMBER.**  
FURNISHED BY MINNESOTA STATE WEATHER SERVICE, J. H. HARMON, DIRECTOR.

STATIONS.	ATMOSPHERIC PRESSURE.				TEMP. OF AIR.	No. of thunder storms.....						
	EXTREME.		Date.....	Lowest barometer....								
	Date.....	Highest barometer....										
Alma City.....	Sept.	.....	.....	65.3	57	1.13	3	3	11	16	1	
Crookston.....	Sept.	.....	.....	59.9	61	4.09	9	11	5	14	5	
Duluth.....	Sept.	29.99	30.32	8	29.67	28	61.6	48	3.31	9	.....	
Faribault.....	Sept.	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	
Farmington.....	Sept.	.....	.....	.....	67.1	.52	.81	5	8	10	12	
Grand Meadow.....	Sept.	.....	.....	.....	6.8	.54	1.84	3	1	4	25	
Jackson.....	Sept.	.....	.....	.....	65.8	.58	1.51	4	8	4	18	
Kinbara.....	Sept.	.....	.....	.....	60.5	.41	4.34	8	8	12	10	
Lake Winnibigoshish.....	Sept.	.....	.....	.....	60.6	.51	3.43	7	10	5	15	
Leech Lake.....	Sept.	.....	.....	.....	66.6	.47	.91	3	12	3	12	
Mankato.....	Sept.	.....	.....	.....	67.6	.51	1.75	6	6	7	17	
* Minneapolis.....	Sept.	.....	.....	.....	65.8	.48	1.92	5	6	7	17	
+ Minneapolis.....	Sept.	29.93	30.31	8	29.62	19	62.0	60	3.50	12	11	
Moorhead.....	Sept.	.....	.....	.....	68.4	.68	.79	7	.....	1	2	
Montevideo.....	Sept.	.....	.....	.....	64.7	.62	3.07	10	6	11	13	
Morris.....	Sept.	29.96	30.26	18	29.69	19	65.7	54	1.41	5	14	
Northfield.....	Sept.	.....	.....	.....	62.8	.47	2.85	5	11	2	17	
Pine River Dam.....	Sept.	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	
Pokegama Falls.....	Sept.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Red Wing.....	Sept.	30.02	30.33	9	29.67	14	66.3	49	1.23	6	2	11
Rolling Green.....	Sept.	.....	.....	.....	66.0	.51	1.38	3	.....	.....	.....	
St. Charles.....	Sept.	.....	.....	.....	65.6	.58	0.58	6	8	12	10	
St. Paul.....	Sept.	30.03	30.31	9	29.71	14	.....	.....	.....	.....	.....	
St. Vincent.....	Sept.	30.08	30.39	9	29.78	14	67.4	56	1.77	4	4	10
La Crosse, Wis.....	Sept.	30.08	30.39	9	29.78	14	.....	.....	.....	16	.....	3
Mean .....	Sept.	30.00	30.32	.....	29.69	.....	64.5	53.4	2.04	5.8	7.0	7.9
										15.1	.....	.....

STATE SUMMARY FOR SEPTEMBER, 1891.—Atmospheric pressure (in inches,) monthly mean, 30.00; maximum observed, 30.33, at Red Wing, on the 9th; minimum observed, 29.62, at Moorhead, on the 17th and 19th.

TEMPERATURE.—(Deg. F.) monthly mean., 64.5; highest monthly mean., 68.4, at Montevideo; lowest monthly mean., 59.9, at Crookston; maximum, 101, at Montevideo, on the 16th minimum, 32, at Crookston, on the 29th, and at Moorhead, on the 3d; range for the State, 69; greatest local monthly range, 68, at Montevideo; least local monthly range, 41, at Lake Winnibigoshish; greatest daily range, 44, at Moorhead, on the 18th; least daily range, at Moorhead, on the 24th.

PRECIPITATION—(in inches), average for State, 2.04; greatest, 4.34, at Lake Winnibigoshish; least, 0.79, at Montevideo.

WIND—Prevailing direction, S; maximum velocity, 54 miles an hour from the southwest at Moorhead on the 19th; other gales reported throughout the State, on the 15th, 16th, 17th, 28th and 30th.

MISCELLANEOUS PHENOMENA—Thunder storms (dates of) 1st, 2d, 7th, 11th, 12th, 14th, 16th, 17th, 19th, 21st, 23d, 24th, 27th, 28th and 30th; hail storms, 28th; auroras, 2d, 3d, 8th, 10th, 27th and 28th; solar halos, 1st, 4th, 5th, 18th and 27th; lunar halos, 13th; mirage, 29th; meteors, 23d; light frosts reported general on the 3d and 29th, and killing at Moorhead on the 3d.

MONTHLY FORECASTS—According to the reports of displaymen of the U. S. Weather Bureau forecasts for Minnesota were verified as follows: For weather, 77½ per cent; for temperature, 80.4 per cent; for weather and temperature combined, 78.4 per cent.

REMARKS—The temperature for the month was between 6 and 7 degrees above the normal for each day. The rainfall for the month was below the average of previous years between 1; and 2 inches, except in the Red River valley, where a slight excess is reported.

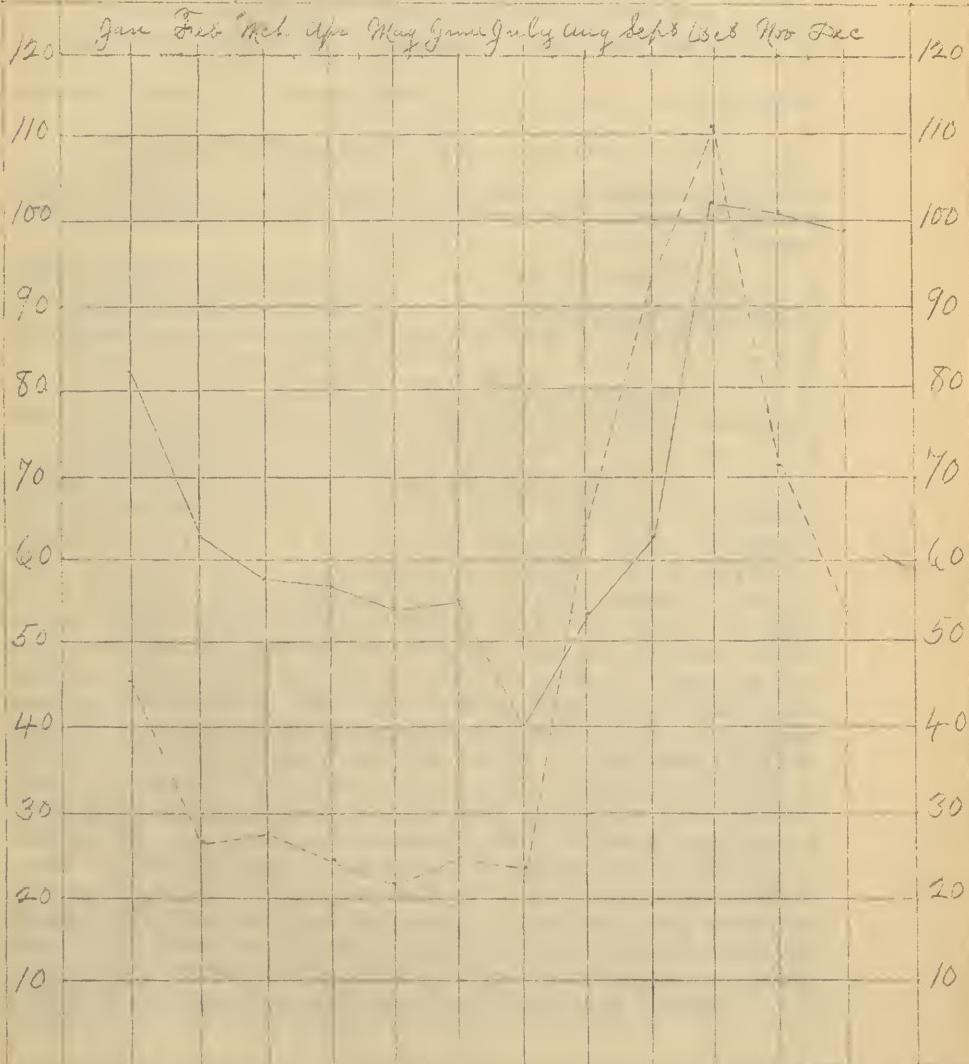
Central Office, Minneapolis, Minn.

J. H. HARMON, Director.

# Minnesota Vital Statistics — Deaths.

Diphtheria - Typhoid Fever - 87-88-89-90 - 10/17/91.

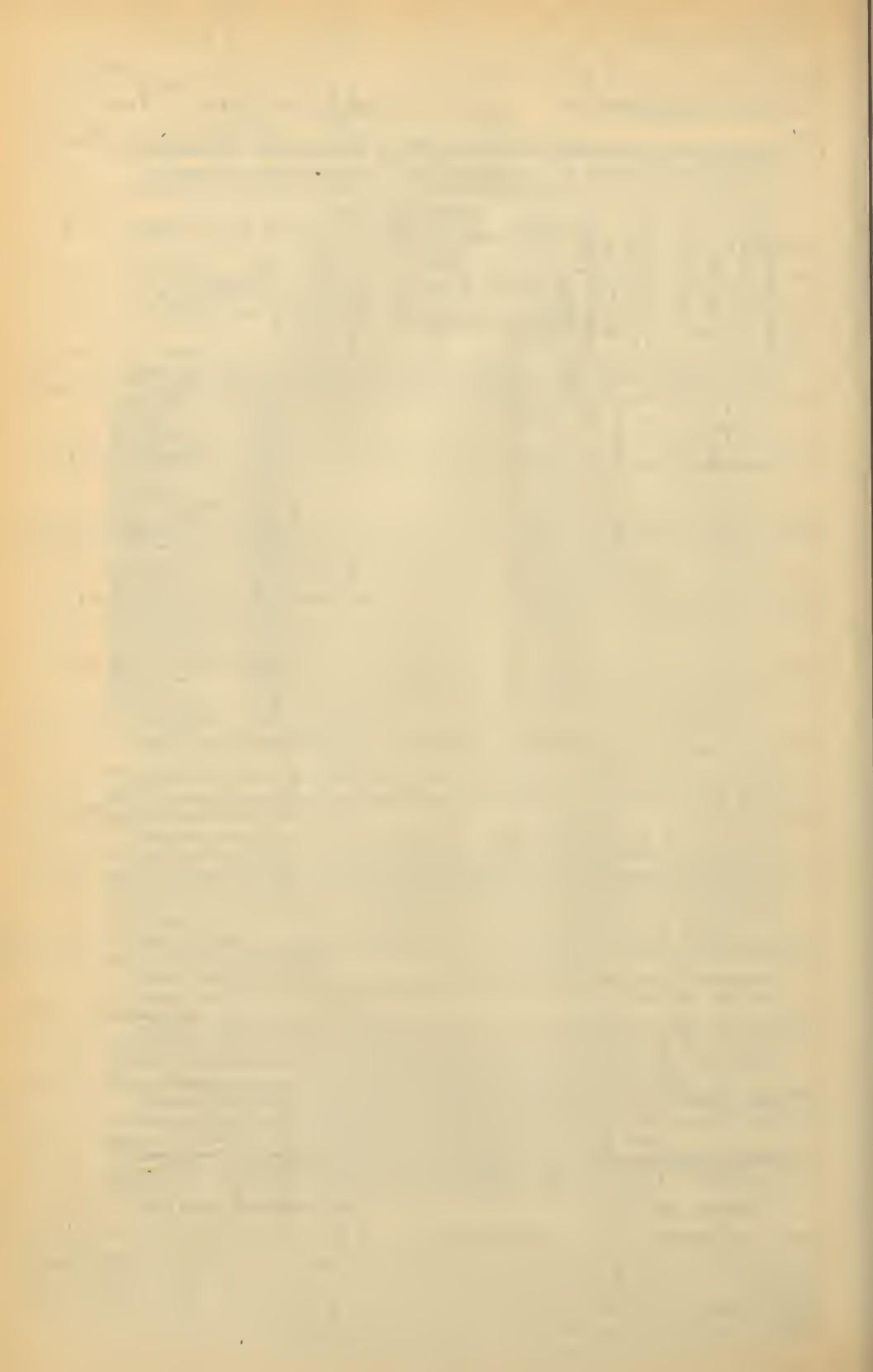
Comparative		1887	1888	1889	1890
Seasonal Mortality	Deaths - all causes	13210	15091	14807	13474
	" Diphtheria	788	852	889	771
Average of four years by months 1887-1890	" D.-% of all deaths	6.00	5.65	6.00	5.81
	, Typhoid Fever	717	572	572	418
	" T.F.-% of all deaths	5.51	3.79	3.87	3.1



Diph.	32	63	58	57	64	55	40	54	62	102	101	99	827
Typh.	46	27	28	25	22	25	24	24	94	111	71	54	591

Diphtheria.

Typhoid Fever.



# PUBLIC HEALTH IN MINNESOTA.

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CHARLES N. HEWITT, M. D., Editor.

OFFICIAL PUBLICATION OF THE STATE BOARD OF HEALTH  
AND VITAL STATISTICS,

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NOTIFICATION OF INFECTIOUS DISEASES FROM WITHOUT THE COUNTRY.—The report of Small-Pox at Port Huron from Canada, (See under *Small-Pox* in this number), has enabled us to make another move in the practical co-operation which we have begun with such of the Services of the general government as can be used to exclude infectious disease on the border. The first at New York, with the Immigration Bureau, on the sea coast, and now with the Marine Hospital Service on the Canadian border, in the State of Michigan. It would have been better that the State Board of Health of Michigan should make this inspection for its state, and so for other states concerned, but without the special order of the Governor that Board is unable to act efficiently. Let us hope that Michigan will yet trust its State Board of Health with the very essential power, promptly, and surely to deal with infectious disease brought in from without, or developing from within, and to do so in legal and hearty co-ordination and co-operation with its Local Boards of Health.

L UMPY JAW.—The Live Stock Commission of Illinois, the most active and vigorous Board of its class, has taken a righteous and determined position as to this disease, isolating and destroying the animals and their flesh. To this "the distillery slop" cattle feeders, and a large firm of butchers in Chicago object, and have brought suit to forbid the Board preventing the sale of the meat of such animals as healthy human food. The jury are reported to have disagreed, and another trial is threatened. The Board will stand firm. Another bout will settle the matter in their favor. See the article under *Diseases of Animals* in this number.

#### OTHER MATTERS.

L ACK of room compels the bare mention of some subjects worthy of special discussion.

*The Chemical Laboratory*—Twenty water analyses, completed in the last month, some of them of great interest. Albert Lea has secured an admirable source of supply in an artesian well, other places not quite so fortunate.

*Bacteriological Work*—Confined to Vaccine, Tuberculosis and Actinomycosis experiments associated with current work.

*Vaccine Station*—The virus is fine, and a good supply is now in hand, more than is called for, so that the production has been lessened.

*Vital Statistics*—The consolidation and correction of the returns of deaths for the last four years (involving the classification of 56,382 individual returns) is near enough completion to enable us to draw some important conclusions, of which a few have been given in the "graphic charts" recently published, with more to come.

*Secretary's Correspondence* in and outside the state has been very large, with much of interest to our readers, if we could only find room to print the extracts selected.

*The Health of Children in the Schools*—Under this head we have valuable matter ready to print when we can. Meantime we have distributed eight copies of the article published last month to every county, city and village superintendent of schools in the state. A few have called for a supply for their teachers, and one County Superintendent has taken the trouble to write a kindly and appreciative letter.

*Notes and Queries*—Are overflowing with instructive matter, which must wait.

*Regular Reports*—We have cut these down to the smallest proportion, but they are too valuable to erase. They represent the conclusions of a large department of our office work and correspondence.

*SMALL-POX—ITS WHEREABOUTS.*

The official record to December 1 is as follows:

*Province of Quebec*—Epidemic still in the St. Lawrence counties. November 24 there remained 16 cases in six counties. There have been in all 130 cases, 27 deaths, 88 recoveries. The Provincial Board may be trusted to make short work of the disease if only the local authorities obey instructions and can control visiting during the holidays.

*New Jersey*—An outbreak of unknown proportions, of which, though over a month old, the State Board have notified no one. A case strayed into Pennsylvania (Point Pleasant) when it came to the knowledge of the Secretary of the State Board, was promptly isolated and notice served on other states. Two more cases in same family, at last report, *and one a little child*. Have written to New Jersey.

*Georgia*—An outbreak of uncertain extent, and a report has been asked for.

*Ohio*—Three cases in two localities, isolated.

*In Tennessee*—Two cases, isolated and promptly reported. One from Cairo, Illinois.

*Among Immigrants*—Nov. 13. Some persons were discovered at Port Huron having an eruptive disease, and returned to Port Edward as having small-pox. This, by the Chief of Police, who telegraphed the Secretary of the Michigan State Board of Health, who in turn gave the report to the papers as a public notice and telegraphed the Commissioner of Health of Chicago, who sent inspectors, vaccine and disinfectants to meet the train, and dealt with the immigrants. Saw the notice in the dailies and immediately wrote to Michigan and Chicago. Michigan reply showed State Board unable to do more than call for a report from the local health officer, which was not forthcoming, and to submit the facts to the Governor for his action. Health Commissioner of Chicago promptly wrote the measures he had taken. Telephoned Secretaries of Province of Ontario and State of Michigan for facts. Ontario replied, "measles," Michigan, "I am satisfied it is varioloid." For our protection the Secretary of this Board asked for the service of a medical officer of the Marine Hospital Service or of the Immigration Bureau of the Treasury Department, familiar with the disease, to inspect immigrants coming West, both at Port Huron and Detroit, the following reply was received:

TREASURY DEPARTMENT,  
OFFICE OF THE SUPERVISING SURGEON GENERAL,  
MARINE HOSPITAL SERVICE.  
WASHINGTON, D. C., November 24, 1891.

DR. CHARLES N. HEWITT,  
Secretary, State Board of Health,  
Red Wing, Minn.

SIR—Referring to your letter of the 21st inst., requesting that medical inspectors be assigned to duty at Port Huron and Detroit, Michigan, for the purpose of inspecting all immigrants coming into or passing through Michigan, I have the honor to inform you that two medical inspectors will be appointed immediately and placed on duty at the above mentioned places. Instructions will soon be issued to the inspectors and a copy of the same will be furnished you.

Respectfully yours,  
WALTER WYMAN,  
Supervising Surgeon General, M. H. S.

PHAGOCYTOSIS is a new word and represents an important advance in our ideas of the ways in which the body repels the germs of disease. I have seen no clearer statement of this theory than that which Roux, one of Metchnikoff's associates in the Institute of Pasteur, gave to us at the late Congress of Hygiene in London.

"M. Metchnikoff," he said, "who discovered the fact, has given to the cells which devour microbes the expressive name of phagocytes."

"Their essential property is that they have amoeboid movements, which enable them to envelope foreign particles, taking them into their interior. The various white corpuscles and the endothelial cells are phagocytes. They have a common origin in the mesoderm, and they have the common faculty of digesting the cells which they enclose. In the higher animals they are the only cells capable of inter-cellular digestion. This digestion is the same for all pathogenic microbes. The more refractory the animal to the attacks of communicable disease the more active the phagocytes. On the contrary, the less refractory the animal the more rapid the infection, as the microbes are free and there is no phagocytosis. The phagocytes are responsible for the defense of the body against the microbes, and are in constant conflict with those parasites." To this theory the school of Koch oppose another which takes one back to the medical teaching of his boyhood. M. Behring and Nissen having studied the operation of the serum of the blood of a great variety of animals upon the pathogenic microbes, think they find it to be the most destructive agent in the fight with communicable disease. They advance many striking and plausible experiments. Both these parties are hard at work, both are capable and honest and both publish their experiments and conclusions. The result is sure to be a clear and helpful gain to our knowledge of the natural means of disease prevention. We are not so much concerned as who wins, but out of their zealous study of two sides of the subject matter, light and fact will come, and not unlikely, altogether new and more efficient methods than we now have.

H.

#### PERIOD OF INCUBATION, AND DURATION OF INFECTION OF INFECTIOUS DISEASES.

*Corrected and amended because of typographical error in first form. It will be understood that this table is but a statement of probabilities, not rigid rules.*

H.

CLEMENT DUKES, "HEALTH AT SCHOOL," ED. OF 1887.

	Incubation		Duration of Infection	
	Days after Ex- posure.	Possible range.	With Efficient disinfection.	No Efficient disinfection.
Scarlatina.....	4th day	1 - 7 days	5 to 8 weeks	2 months
*Diphtheria.....	2d "	2 - 5 "	*3 "	*2 "
Erysipelas.....	4th "	1 - 7 "	3 - 4 "	1 "
Small-pox.....	12th "	1 - 11 "	av. 6 "	2 "
Chicken-pox.....	11th "	10 - 18 "	av. 3 "	1 "
Enteric fever.....	21st "	1 - 28 "	1 to 3 months	2 "
*Measles.....	eruption 11th "	10 - 11 "	2 to 4 weeks	1 "
Rothelin or Epi- demie Roseola...{	11th "	12 - 20 "	4 to 25 days	1 "
*Mumps.....	19th "	16 - 21 "	14 to 28 "	1 "
†Whooping cough.....	11th "	7 - 14 "	6 weeks	2 "

\*The duration of the infectiousness of Diphtheria is now proved to be at least three weeks, so that should be the shortest period of isolation of a case after apparent complete recovery, and with no disinfection whatever it should be at least three months. The changes in the table are from two weeks to three, and one month to two.

†Infectious during Catarrhal stage, three days before eruption.

‡Infectious twenty-four hours before the swelling of glands.

†Infectious during primary cough; may be three weeks before the "whoop" and for six weeks after.

#### DIPHTHERIA IN FRANCE IN 1886-90.

BY J. BERGERON, M. D.

PROPAGATION AND PROPHYLAXIS OF DIPHTHERIA.—A paper read at the seventh International Congress of Hygiene and Demography, London, August, 1891.

No reporter of the Section on Preventive Medicine made a better impression for sincere earnestness than M. Bergeron. There was little opportunity for discussion, and it will, I am sure, interest our readers to know something

from so competent authority, of the French experience with this plague of children, we translate from the report in the *Revue d' Hygiène*.

He finds it very difficult to determine how diphtheria originated, and passes on to show, by elaborate statistics, that within a third of a century it has become epidemic in France and steadily advanced till now. In the three years, 1886-7-8, and in 195 cities, it caused 16,427 deaths, 1,130 more than typhoid fever in the same time and localities. He writes: "I do not know what the statistics of my associates here may show, but the conclusion which follows, with distressing certainty, from ours is this, that diphtheria has become a real public calamity in France, in the presence of which it is the duty of sanitarians to devote themselves to the work of making known to people and officials alike, the means best adapted to diminish these disastrous results."

He agrees that medical experience did not need the additional evidence of bacteriological experiment to be sure that diphtheria is a specific and infectious disease. "We can trace the exterior origin of small-pox and typhoid fever, and, by vaccination and pure water, prevent their spread, but we have no such direct means to control diphtheria, and are, at present, limited to *disinfection and isolation*."

As to the mode of transmission of the infection M. Bergeron is a believer, almost exclusively, in *direct infection*, either by the false membranes from infected persons, getting direct access to the mucous surfaces of healthy folk; by the fluid secretions from the infected taking the same course; by the membrane or secretions getting on clothing, toys, the walls of buildings and, either moist or dry, spreading infection. He suggests no new mode of infection and falls short of our own common experience in that respect. As to isolation, he quotes approvingly the dictum of the present sanitary oracle of France, Brouardel: "That there is no epidemic disease upon which, in this respect, we have so little information." Still, he goes on to state his own belief, and a very positive and sensible one, too. "I am satisfied that many supposed cases of apparently rapid transmission are due to the simultaneous infection, with a very brief incubation, according to the varying susceptibilities of the infected. But this cause of error aside, who has not seen persons (a mother or servant) free from all other exposure than a special case, affected the very day of exposure, and within 36 or 48 hours presenting false membranes, and showing how brief the period of incubation may be?" M. Bergeron refers to an experience common enough, unfortunately, with us—the difficulty of distinguishing pseudo-diphtheritic sore throat, and diphtheritic from other possible forms of croup. He takes the sensible course, which has been our rule for years, to isolate all doubtful cases as thoroughly as possible.

He goes on to state that if it is important to know that the disease is infectious from the outset, it is also important to know the extreme limit of its transmissibility, i.e., how long after apparent recovery a patient may be able to give the disease to another. He adopts the period of six weeks as the maximum term of isolation. "This is, in fact, the rule in France and in England, for if we exact forty days from the infection, in France, in England they require twenty-eight days after all morbid appearances have disappeared." So he advises isolation from the first appearance of any exudate in the throat or symptom of croup. Going on to consider the very important class of "*suspects*," he defines them, as we do, to be persons, infants or adults, who have been in more or less direct contact with the sick of the disease and, therefore, are liable to have contracted the infection, and may themselves, later on, become centres for its further distribution. On their account it is, evidently, very important to fix the period of incubation of the disease, i.e., the longest time likely to elapse between exposure to the infection and the appearance of the first symptoms. "The great majority of facts justify the conclusion that it is very short. Prof. Layet was assured in England that the incubation was "from 2 to 5 days; in Germany, from 2 to 7 days, and in France we acknowledge a period of from 3 to 7 days, so as a measure of safety it is agreed that "the isolation of suspects should be for at least 10 days after last exposure." Dr. Bergeron goes further, and from his own experience suggests 20 days.

From 10 to 14 days is the rule in Minnesota, and nothing in our practice serves a better purpose in the control of diphthiria than our caution in taking any chance of the spread of this treacherous disease.

As to the advantage and need of closing schools in the presence of the disease he quotes very conflicting opinions in France, and he asks for the advice of the Congress. He got little assistance from one class of our English brethren, as represented by Dr. Seaton, who are still urging the abstract study of the disease as of greatest importance, but the other class, both British, Continental and American, who are in constant conflict with it, spoke facts, more eloquent than theory, of hope and success.

H.

### ACTINOMYCOSIS.

(LUMPY JAW.)

LUMPY JAW is the very expressive name by which the common variety of this disease is known among stockmen and dealers in cattle. But few know that it very commonly affects the lungs, bowels and the glands all over the body. It was stated at the Congress of Hygiene in London, last August, that the affection of the lungs was common, and constantly mistaken for tuberculosis, which in its general features, to the naked eye, it resembled.

The cause is now known to be a vegetable fungus, something like those found on mouldy bread, paste, preserves, etc. It is thought to have originated as a parasite of certain grasses, as barley, the beards of which have been found in the tumors caused by the fungus, both in animals and man. The little yellow concretions, like a mass of yellow sand, found in these tumors or the matter coming from them, are characteristic of the disease, and are recognized without the microscope. This affection is very common in some sections of the country (eg. Nebraska) and is quite frequent in cattle offered for slaughter at the great meat centres, Chicago, Kansas City, etc.

The importance of the subject to us, who are responsible for communicable diseases of animals, is found in the fact that it is reasonably suspected of being communicable from animal to animal, from animal to man, and from man to man. It is only within a short time that the real character of the disease has been recognized or the extent of its ravages on man and beast. There are a few facts admitted by all. The disease can be inoculated from animal to animal, and from man to animals. In both it invades the whole body. It has been found even in the brain of a child. Its presence there, in the lymphatic glands, and in many tissues is only explicable on the theory that it is, in its early stage, transmitted as so many similar disease causes are, through the lymphatics and blood vessels. This is all the more probable since we know that the concretions referred to which were only recently thought to be the disease, are but one and that not the most active form of the fungus. Dr. Frank Billings, who has been studying this disease recently, showed the writer the other day photographs of the bacilli from cultures of this plant in its earliest growth, which very closely resemble the bacilli of other communicable diseases both in appearance and size. It seems not an unreasonable inference that this is its earliest form in the body, and that, even if larger than other cocci or bacilli, it could be easily carried in the fluids of the lymphatics and blood vessels.

That there is a reasonable probability that lumpy jaw is communicable from animals to man is the opinion of the State Board of Health, and it therefore sustained the action brought a few years ago by Dr. Hoyt as Health Commissioner of St. Paul to condemn lumpy jaw meat offered for human food. The case was tried by the judge alone at the request of the defendant, so sure was he of a verdict. The judge decided for the city, and the meat inspection force of St. Paul was increased thereafter. No one surely, will claim that this disease improves the meat; all must admit that in proportion to its extent it injures it, and yet there are those who would have Boards of Health permit it to go onto the market as healthy food. To do that would be to endorse a fraud and a falsehood. It is furthermore indecent to sell such meat

without notifying the buyer of its real character, and the would-be seller knows that it could not be sold for what it actually is. It is not permitted to be sent to foreign markets, being excluded by the condemnation of most of the inspectors of the Department of Agriculture, but it does not appear that those same inspectors prevent its sale in this country. The Live Stock Commission of Illinois is to-day engaged in a lawsuit, brought to prevent its "rendering" the meat of cattle condemned as lumpy-jawed. A curious feature of the trial was the refusal of the Chief of the Bureau of Animal Industry to take the stand for the Board, though his own inspectors are condemning such meat.

The attempt to justify the sale of this meat as healthy on the ground that it is done in Europe, is based on the assertion that it is admitted there because it is healthy, when the fact is that because of the limited supply, the great price, and the increasing and urgent popular demand for animal food, authorities profess themselves compelled to permit the sale of almost everything except putrid meat. I saw in the public slaughter house in Munich the carcasses of cattle and horses far gone with tuberculosis and other diseases prepared for human food and sold with the above excuse. It is usual to sell all lungs which can be blown up, and nearly all of the entrails. Such a standard would not be tolerated here, and Boards of Health cannot permit practically the same thing by tolerating any other but the highest standard for meats to be sold as human food.

H.

#### *INFECTIOUS DISEASES REPORTED DURING THE MONTH.*

##### DISEASES OF MEN.

###### OCTOBER.

Diphtheria .....	{ cases, .....	29
	{ deaths, .....	7
Scarlatina .....	{ cases.....	31
	{ deaths.....	6

##### DISEASES OF ANIMALS.

Cases of glanders remaining isolated or not accounted for Oct. 1.....	57
Reported during the month.....	9
Killed     "     " .....	1
Died     "     " .....	0
Released     "     " .....	0

Remaining isolated or not accounted for Nov. 1..... \*65

\* NOTE.—Most of these are cases exposed to possible infection, and isolated for further observation.

#### *MINNESOTA WEATHER SERVICE.—REPORT FOR OCTOBER.*

FURNISHED BY MINNESOTA STATE WEATHER SERVICE, J. H. HARMON, DIRECTOR.

STATE SUMMARY FOR OCTOBER, 1891.—ATMOSPHERIC PRESSURE (in inches)—Monthly mean, 30.07; maximum observed, 30.66, at St. Paul, on the 27th; minimum observed, 29.53, at Moorhead, on the 30th; range for State, 1.07.

TEMPERATURE (Deg. F.)—Monthly mean, 46.2; highest monthly mean, 50.0, at Minneapolis; lowest monthly mean, 42.3, at Crookston; maximum, 81, at Montevideo, on the 1st; minimum, 17, at Kinbrae, on the 27th; range for State, 64; greatest local monthly range, 57, at Montevideo; least local monthly range, 43, at Duluth; greatest daily range, 37, at Moorhead, on the 28th; least daily range, 1, at St. Paul, on the 3d.

PRECIPITATION (in inches)—Average for State, 1.87; greatest, 4.13, at Grand Meadow; least, 0.64, at Pine River Dam.

WIND—Prevailing direction, N. W.; maximum velocity, 52 miles, from the S. E., at Moorhead, on the 11th; other gales reported throughout the State on the 25th and 31st.

MISCELLANEOUS PHENOMENA—Thunder storms reported at Red Wing on the 2nd and 16th, and at Farmington on the 2nd; solar halos at Farmington on the 4th and 23d, and at Red Wing on the 7th; mirage at Kinbrae on the 27th; frost general throughout the State during the entire month; snow occurred on the 30th and 31st.

FORECASTS—According to the reports of displaymen, the Weather Bureau forecasts during the month, for Minnesota, were verified as follows: Weather, 89.6 per cent; temperature, 89.3 per cent; weather and temperature combined, 89.5 per cent.

Central Station, Minneapolis, Minn.

**DISTRIBUTION AND MORTALITY OF THE MORE IMPORTANT DISEASES IN MINNESOTA.**—Month of October, 1891, (includes all October returns to November, 2d.)

POPULATION, CENSUS OF 1890.

STATE .....		1,302,826
First Class (cities of over 100,000), St. Paul and Minneapolis .....		297,891
Second Class (cities of between 15,000 and 50,000), Duluth and Winona .....		51,323
Third Class (cities of between 5,000 and 15,000), Stillwater, St. Cloud, Mankato, Faribault, Red Wing and Rochester .....		41,732
Population living in ten cities of over 5,000 people .....		293,969
Population living in cities, villages and townships of less than 5,000 people .....		907,857
(The Census Bureau has repeatedly promised the returns for the smaller civil divisions of the State, but up to date they have not been received.)		

STATE.

	Total, October, 1891.	Localities Invaded.	No. Counties Invaded.	October Av. 4 Years.	Rate per 1,000 Living
From all causes .....	864 (467-394-3)			887.5	8.29
Diarrhoeal diseases					
of children.....	76 (36-40)	46	31	69.5	.64
Diphtheria.....	57 (24-33)	20	16	78.2	.73
Tuberculosis.....	81 (36-45)	37	31	76.6 (av. 3 yrs)	.71
Croup.....	15 (12-12)	7	7	20. (av. 3 yrs)	.18
Measles.....	1 (0-1)	1	1	2.7	.02
Scarlatina.....	7 (3-4)	9	6	8.	.67
Whooping Cough.....	26 (12-14)	21	16	19. (av. 2 yrs)	.17
Enteric Fever.....	56 (35-21)	23	21	68.	.63
Pneumonia.....	28 (17-11)	15	13	43.	.4
Bronchitis.....	12 (5-7)	8	8	13.6	.12

MORTALITY BY CLASS.

	First Class.	Second Class.	Third Class.
Death from all causes .....	237 (183 m., 152 f., 2 unk.)	67 (32 m., 35 f.)	50 (25 m., 25 f.)
Diarrhoeal diseases of chil., 23 (12 m., 11 f.)	3 (0 m., 3 f.)	5 (3 m., 2 f.)	
Tuberculosis.....	40 (17 m., 23 f.)	3 (1 m., 2 f.)	8 (3 m., 5 f.)
Diphtheria.....	30 (18 m., 14 f.)	3 (0 m., 3 f.)	2 (0 m., 2 f.)
Pneumonia.....	10 (0 m., 4 f.)	5 (2 m., 3 f.)	2 (0 m., 1 f.)
Enteric Fever.....	23 (14 m., 9 f.)	6 (4 m., 2 f.)	2 (0 m., 2 f.)
Scarlatina.....	3 (1 m., 2 f.)	1 (0 m., 1 f.)	none.
Croup.....	7 (5 m., 2 f.)	none.	2 (2 m., 0 f.)
Bronchitis.....	6 (3 m., 3 f.)	none.	1 (0 m., 1 f.)
Whooping Cough.....	2 (2 m., 0 f.)	2 (1 m., 1 f.)	1 (1 m., 0 f.)
Measles .....	none.	none.	none.

MORTALITY IN CITY AND COUNTRY.

	In Ten Cities, Pop. over 5,000		In Cities, Villages and Towns Pop. less than 5,000	
	Total Deaths	Deaths to 1,000 Living	Total Deaths	Deaths to 1,000 Living
Diarrhoeal diseases of children.....	31	.95	45	.6
Tuberculosis.....	51	1.57	30	.4
Diphtheria.....	35	1.08	22	.29
Pneumonia.....	17	.52	11	.14
Enteric Fever.....	31	.95	25	.33
Scarlatina.....	4	.12	3	.04
Croup.....	9	.27	6	.08
Bronchitis.....	7	.21	5	.06
Whooping Cough .....	5	.15	21	.28
Measles .....	None.	None.	1	.01

# PUBLIC HEALTH IN MINNESOTA.

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CHARLES N. HEWITT, M. D., Editor.

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DECEMBER, 1891.

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## INTER-STATE NOTIFICATION AND CONTROL OF INFECTIOUS DISEASE BY STATE BOARDS OF HEALTH.

INTER-STATE notification of infectious diseases was proposed by the writer to a meeting of such delegates from State Boards as happened to attend the American Public Health Association at Nashville, in 1879. A committee was appointed, which reported at a later meeting in St. Louis, and still later in Washington, a temporary organization was effected at the suggestion of the writer. At another meeting, held in Toronto, in 1886, during the session of the American Public Health Association there, an agreement was made by such representatives of State Boards as were present, to notify

cholera, yellow fever and smallpox. Much was expected of this beginning to do what had been so long waiting to be done, but the result has been disappointing, in that it has taught us the business lesson that "it is one thing to promise and another to deliver the goods." State Boards were pledged to this agreement who could not collect the information promised, even for their own use, and who could not, therefore, furnish it to others. To be of any other than *historical* value the inter-state notification of infectious disease must be *prompt* and *accurate* as to the character of the affection, its origin, distribution and the danger of its extension.

To enable a State Board to give such information *within* or *without* its own State these conditions seem absolutely essential.

First—Well organized and active Local Boards of Health legally bound to report infectious diseases, in the above details, to its State Board.

Second—A State Board which has co-ordinate power and jurisdiction with every Local Board in the detection and control of infectious disease.

How many State Boards of Health have such authority, and how many Local Boards are properly organized, is to-day a very important question, much more so than when first proposed, because then sanitary organization was new and few of the states had made more than tentative movements in that direction, and the National Board of Health was actively engaged in trying to centralize power and funds. Now all is changed; enough State Boards have been authorized to exercise executive powers, and have done so, to show the advantage and necessity of such power. There is not one of the State Boards of little or no influence in this direction for lack of law, who has not been instant in season and out of season in calling for national legislation of the most arbitrary sort, and for large funds to be used in promoting sanitary effort in a variety of ways. One cannot avoid the impression that their urgency has been stimulated by their own weakness. What has been accomplished? The Marine Hospital Service is doing the duty of a State Board in Georgia, where there is no such Board, caring for negroes sick with smallpox, at the request of the Governor, and the Health Officer of Savannah; it is examining immigrants coming into and through Michigan, at the request of the Governor and State Board of Health, while the Immigration Bureau are inspecting at Port Huron, calling in a civil or Marine Hospital Service doctor, as the lay inspector thinks needful. There is no inspection by the Board of Health of the Province of Ontario as respects the smallpox in Quebec, or by either, as against the immigration through Portland. The whole subject needs thorough ventilation by all the State

Boards which have enough executive power and disposition, to be of any practical use in dealing with the business questions which grow out of it.

TUBERCULOSIS IN MILCH COWS demands very serious consideration in its relation to milk as an article of diet, particularly for infants and young children. See under "Diseases of Animals" for two weighty opinions by two of the most competent of men who test their opinions by actual experiment and under the severest conditions. Arrangements are in progress for a thorough study of the conditions of Minnesota herds in this respect, and the attention of Health Officers and Chairmen is called to the inquiry in their own neighborhoods. Please report to the Secretary, giving names, dates and all possible facts discovered.

GLANDERS have been under a careful and systematic observation since the spring of 1885. The following summary tells the story since January 1st, 1891: One hundred and forty-four horses have been isolated by the Local Boards of Health as suspected of having glanders, in sixty different localities and thirty-one counties. Forty-seven were released after due observation as unaffected, ten died of the disease and fifty-six were killed and buried for one or other form of the disease. But thirty-one horses in the entire State are now isolated under suspicion of this disease.

THE VACCINE STATION for the production of Calf-lymph has become an established section of the regular work of the laboratory, for that is what it must be to retain the high standard of excellence in methods and products which it has already reached. The product is regulated now by the demand, provision being made for at least 1,000 points of fresh and active "vaccine" always on hand to meet a sudden and urgent call. The product for distribution in December was 1,317 "charged ivory points," which involves half as much more virus for experiments in laboratory and for the vaccination of other calves and a few children, who come to the station for that purpose.

Six hundred points have been furnished to the Hospital for the Insane at Rochester this month, and about 300 will be used for the Reform School children.

#### *INFECTIOUS DISEASES—THEIR WHEREABOUTS.*

IN MINNESOTA.—(Our office register is a large township map of the State, upon which each outbreak of this class is marked by a colored tack on the locality invaded. This mark remains till the outbreak is disposed of).

*Diphtheria*—Is in 25 counties and 34 localities. In 18 counties there is

but 1 locality invaded; in 4 counties, 2 localities; in 3 counties, 3 localities. The distribution is what we call "family," for rarely is more than one family affected, in country districts, before the Local Board of Health is in charge and the disease is restricted to that family. Sometimes it reaches another intimately associated with the first.

*Scarlatina*—Stands charged with 22 outbreaks at date, in 16 counties and 22 localities. There are 12 counties with 1 outbreak each; 2 counties with 2 outbreaks in each, and 2 more counties in which are 3 outbreaks.

IN OTHER STATES AND PROVINCES.—

*Quebec* is the only State authority which has issued a weekly bulletin of the exact statistics of an outbreak. The Provincial Board of Health may be justly proud of the record it is making against as great odds as any of the rest of us have ever had to contend with. There remain 13 cases, in 3 localities and 2 counties.

In *Georgia* the record is a sad one. There is no State Board of Health nor any living Local Boards except in the large cities. Small-pox was imported into Savannah more than a year ago, and has been in that part of the State ever since. The Health Officer of Savannah writes: "On the 10th day of last December the first case appeared in Savannah, followed by 65 cases in and around the city, where, out of a population of 41,000, 30,000 were vaccinated. It appeared afterwards in a negro village, where I found nearly 100 cases about a month ago. I found the county authorities unable to cope with the disease, and through the Governor of the State of Georgia got the Marine Hospital Service to take charge of the situation. There is no State Board of Health in Georgia."

*Tennessee*—No further reports, except a denial from Illinois that the case reported to have gone to Memphis from Cairo did so. No small-pox in Illinois.

*Pennsylvania*—No further accounts of the small-pox reported last month. The Secretary of the State Board of Health has been instructed to correspond with the President of the United States and the Supervising Surgeon General of the Marine Hospital Service about the measures Congress should take as respects "the evident lack of sanitary precaution and humane provision for lepers." Have written to learn what it is proposed to do. The Governor of Pennsylvania has called upon the State Board of Health "to present to the World's Columbian Exposition—whatever in its objects and works is worthy of public note and consideration."

*New Jersey*—The following account of small-pox there, is from the correspondence of the Secretary: "Have had no death from small-pox in this State for four years up to last November. The first case occurred in a small Italian quarter in Trenton. We have had, in all, about 30 cases. The only other cases, thus far reported, are in Paterson and Newark—only a single case in Paterson and several in Newark. We have a full system of monthly reports of deaths from each city and township, but we do not require that every case of contagious disease be at once reported to the Board."

*Michigan*—On the 16th of November the Chicago papers reported the measures taken by the Commissioner of Health of that city to stop an invasion of infected immigrants who were reported by the Secretary of the Michigan State Board of Health to be coming from Port Huron. We wrote to the Secretaries of the Michigan and Ontario Boards, asking for the facts. The suspected parties were in a family coming through Canada from New York, where they had been inspected. The chief of police at Port Huron, after inspecting one of the suspected through a ear window, ordered the family and ear returned to Canada, but permitted the other occupants of the ear to go on to Chicago, notifying the Secretary of the State Board of Health by telegraph that the disease was small-pox. The Secretary gave the dispatch to the Associated Press and telegraphed it to the Commissioner of Health. Meantime the Canadian authorities, provincial and local, declared the disease measles. Instead of authorizing the State Board to deal with the supposed infection, the Governor of Michigan, with the Secretary of the State Board of Health called on the Marine Hospital Service to do the inspection for them.

It now appears that the Marine Hospital inspection could extend no further than Detroit, where there was no trouble, and that the Immigration Bureau (with no medical man except the lay inspector thinks him needful) was then and is now inspecting at Port Huron, where the bulk of the immigration passes. Neither Secretary visited the suspected cases, leaving it to the local authorities, of which the Canadian declared the disease measles, and the Michigan small-pox. So far as we can learn the probabilities are that the disease was measles. It is very evident that neither Ontario or Michigan can fully comply with the contract for inter-state notification, no can either Board of Health deal with infectious diseases in localities except by extraordinary powers only given in emergency.

---

*Does one attack of Smallpox always protect against another?* is a question which 99 in 100 people would answer—certainly, it does. So did one of our County Superintendent of Schools when I proposed to him to accept re-vaccination as an example to his teachers. “I had smallpox very bad when a boy 14 years old, and was vaccinated in 1869, without effect. I accepted the operation of you only as an example, having no idea that it would ‘take.’ Much to my surprise, one of the points of your vaccination took and developed quite perfectly.” A lesson in “prevention” well worth a record, and corresponding with what the writer saw among soldiers, vaccinated, some years after smallpox, during the Rebellion.

---

*Is influenza contagious?* Dr. Clement Dukes, physician of Rugby School, judging by experience, says “Yes, and becomes epidemic because of its infectiousness.” “In January, 1890, he arranged that every boy attacked should be removed to the sanitarium, (school hospital) and no matter how mild the attack, be kept in bed five days, in doors for other five days to regain strength, returned to school to take precaution for several other days to “prevent cold.” The result was, 46 cases in 6 weeks; no after effects. Out of 414 boarders 10.3% affected. The disease was very rife in town and neighborhood.

January, 1891, school began, but not a case till March 16, and then 84 cases before May 1, with 1 death from cerebro-spinal meningitis, the only one in both outbreaks; 447 boarders had 19.1% sick. Taking the two outbreaks together there 15.19% sick.

In another school which he attended in 1891, with slight facilities for isolation, the sickness was 50%. In another, where no precautions were taken, the sickness was 49%, in the first epidemic and none in the last. One attack usually protects from a second. Out of 130 cases, only 4 had second attack. Quinine failed as a prophylactic."

*Vaccination with animal lymph a prophylactic against influenza.*—Dr. Julius Althaus, of London, describing this disease (in London *Lancet* of November 21, 1891), concludes: "I would recommend in case of another epidemic of influenza, wholesale protective vaccination of the population with animal lymph, and quotes its influence in lessening the occurrence and fatality of influenza in the German army.

"In spite of their greater exposure to the secondary causes of the disease, it was found that while influenza affected 4.2% of the civil population of Berlin, and 64% of that of Paris, it affected only 11.1 of the German army. With the last the average duration of the disease was 5.65 days; unfavorable complications in 3.1%. Mortality 12 times less than in Berlin and 25 times less than in Paris. We may not be able to stamp out influenza by revaccination, but there is good reason to make a trial of it."

#### DISEASES OF DOMESTIC ANIMALS.

*Tuberculosis in the Cow*—Professor M'Fadyean, of Edinburgh, whose competence admits of no dispute, writing from a large experience in a recent paper, states that "Tuberculosis of the mammary gland appears to be more frequent in the cow than in any other species. \* \* \* Regarding the danger of from tuberculous cows, opinion at the present day is almost unanimous. It admits of no denial that Tuberculosis of the cow's udder is not a rare disease, and it is equally certain that when that organ becomes the seat of Tuberculosis the bacilli of a comparatively early stage of the process are present in the milk. Such milk invariably proves infectious when susceptible animals are fed experimentally with it, and there is every reason to fear that the result is the same when it is unwittingly consumed by human beings. \* \* \* But the public have surely a right to demand that when they purchase what purports to be wholesome milk, that article of food shall not have been mixed with the germs of a deadly disease. The absolute assurance that milk is free from tubercle bacilli is probably not attainable, but it would not be difficult to frame and carry out regulations that would greatly diminish the present risk." (Paper before the National Veterinary Society of Great Britain, July, 1891.)

*Tuberculin as a Diagnostic Agent for Tuberculosis in Cattle*—None of the recognized authorities on this subject write with more confidence than the distinguished chief of the great French Veterinary School at Alfort, Nocard. "By a fortunate accident he was enabled to test tuberculin on 57 cattle, and then to examine them after slaughter. He found 19 in whom there was a rise of from 1.4°<sup>O</sup> to 2.9°<sup>C</sup> in from 10 to 20 hours after a single hypodermic injection of from 20 to 40 centigrammes of tuberculin. Of these 19 animals 17 were found to be tuberculous on post mortem. Of the 38 who gave no reaction two were so evidently tuberculous that tuberculin was not needed to prove the fact. A very important point is that of the 17 tuberculous animals 8 were in good condition, giving no evidence of the disease to the most skillful examiner. As a result of these critical tests Nocard holds that all dairy cows should be tested by the use of tuberculin, and that all which react to it should be set out either for milk supply or for breeding. This means of diagnosis should exclude no other found useful."

## FOREIGN SANITARY NOTES.

**W**HICH is responsible for the sanitary supervision of London—the Local Government Board or the London County Council? asks the London *Lancet*; “202 cases of typhoid fever in S. E. London within four weeks, and the water supply was sampled weeks after for analysis. Had some paltry village in the provinces been thus affected the Local Government Board would have been set in motion and an inspection of the district would have been made. The fact that the epidemic occurred in London seems to make it nobody's business.” The *Lancet* knew well enough the answer to its own question. It is the subdivision of sanitary authority in the metropolis and the confusion caused by recent and impending legislation. Add to this the fact that the medical officers of health, from the Local Government Board through the County Council to him of some “combined district”, are but the consultants or medical advisers of their respective authorities. The only ones who knew what should be done in the case quoted, are, very likely, the only ones who have no *executive* function in the matter. One can read this fact in Mr. Shirley F. Murphy's inaugural address as President of the Society of Medical Officers of Health last month in London. He is M. O. H. of the London County Council, their sanitary expert and consultant, and takes no share in the administration except when his advice is sought.

*Sanitary progress in Dublin.* The indefatigable Health Officer, Sir Charles Cameron, showed in a recent report that despite greater obstacles than any other city in the kingdom, ten years of persistent effort have reduced the general death rate and greatly reduced the zymotic mortality. Typhus has almost disappeared, but there is little decrease in typhoid.

## INFECTIOUS DISEASES REPORTED DURING THE MONTH.

## DISEASES OF MEN.

## NOVEMBER.

Diphtheria .....	{ cases, .....	45
	{ deaths,.....	6
Scarlatina .....	{ cases, .....	82
	{ deaths.....	9

## DISEASES OF ANIMALS.

Cases of glanders remaining isolated or not accounted for Nov. 1.....	65
Reported during the month.....	5
Killed      “      ” .....	4
Died      “      ” .....	4
Released      “      ” .....	24

Remaining isolated or not accounted for Dec. 1..... \*31

\* NOTE.—Most of these are cases exposed to possible infection, and isolated for further observation.

## MINNESOTA WEATHER SERVICE.—REPORT FOR DECEMBER.

FURNISHED BY MINNESOTA STATE WEATHER SERVICE, J. H. HARMON, DIRECTOR.

STATE SUMMARY FOR NOVEMBER, 1891.—ATMOSPHERIC PRESSURE (in inches)—Monthly mean, 30.07; maximum observed, 30.65, at St. Paul, on the 17th; minimum observed, 29.50, at St. Vincent, on the 11th; range for State, 1.15.

TEMPERATURE (Deg. F.) Monthly mean, 24.6; highest monthly mean, 28.6 at Minneapolis; lowest monthly mean, 20.0, at Moorhead; maximum, 70, at Mankato, on the 1st; minimum, 27, at Morris, on the 28th; Range for State, 97; greatest local monthly range, 91, at Montevideo; least local monthly range, 56, at Duluth; greatest daily range, 40, at Moorhead, on the 29th, and St. Vincent on the 11th; least daily range, 2, at Duluth, on the 22d.

PRECIPITATION (in inches)—Average for State, 0.76; greatest, 1.05, at Farmington; least, 0.49, at Mankato.

WIND—Prevailing direction, N. W.; maximum velocity, 32 miles, from the S. E., at Moorhead, on the 30th; other gales reported on the 1st, 18th, 24th and 30th.

MISCELLANEOUS PHENOMENA—A thunder storm reported at Grand Meadow on the 6th; an aurora was observed at Pine River Dam on the night of the same date; lunar halos were ob-

served at Farmington on the 16th, at Pine River Dam on the 25th, and at Rolling Green on the 16th and 19th. A solar halo is reported at the latter station on the 16th.

**FORECASTS**—According to the reports of displaymen, the Weather Bureau forecasts during the month, for Minnesota, were verified as follows: Weather, 79.6 per cent; temperature, 84.9 per cent; weather and temperature combined, 81.7 per cent.

**REMARKS**—The month was an unusually cold one, the mean temperature being from 5 to 7 degrees below the normal. In the extreme western portion of the state the precipitation was about normal; elsewhere it was deficient.

## DISTRIBUTION AND MORTALITY OF THE MORE IMPORTANT DISEASES IN MINNESOTA.—Month of October, 1891, (includes all October returns to November, 20.)

### POPULATION, OENSUS OF 1890.

STATE.....					1,301,826
*First Class (cities of over 100,000), St. Paul and Minneapolis.....					297,894
+Second Class (cities of between 15,000 and 50,000), Duluth and Winona.....					51,323
†Third Class (cities of between 5,000 and 15,000), Stillwater, St. Cloud, Mankato, Faribault, Red Wing and Rochester.....					44,732
Population living in ten cities of over 5,000 people.....					393,969
Population living in cities, villages and townships of less than 5,000 people.....					907,857

### STATE.

Total, November, 1891.	Localities Invaded.	No. Counties Invaded.	November Av. 3 Years.	Rate per 1,000 Living
From all causes...731 (367-354-1)			743.3	6.95
Tuberculosis.....71 (36 35)	31	26	71.5 (av. 2 yrs)	.66
Diphtheria.....43 (20-23)	16	14	57.6	.54
Pneumonia.....41 (20-21)	17	17	42.3	.39
Enteric Fever.....55 (35-20)	28	25	51.0	.47
Scarlatina.....21 (11-10)	7	7	12.3	.11
Croup.....15 (5-10)	10	9	20.3	.19
Bronchitis.....29 (15-14)	20	17	20.3	.19
Whooping Cough..7 (3-4)	6	6	2.3	.02
Measles.....2 (2-0)	1	1	3.0	.02
Diarrhoeal diseases of children.....20 (10 10)	8	8	19.3	.18

### MORTALITY BY CLASSES.

	* First Class.	† Second Class.	† † Third Class.
Death from all causes.....335 (170 m., 185 f.)	59 (30 m., 29 f.)	19 (12 m., 7 f.)	
Tuberculosis.....37 (20 m., 17 f.)	4 (0 m., 4 f.)	4 (2 m., 2 f.)	
Diphtheria.....14 (6 m., 8 f.)	9 (3 m., 6 f.)	none.	
Pneumonia.....23 (13 m., 10 f.)	2 (0 m., 2 f.)	none.	
Enteric Fever.....20 (12 m., 8 f.)	7 (4 m., 3 f.)	1 (1 m., 0 f.)	
Scarlatina.....16 (9 m., 7 f.)	1 (1 m., 0 f.)	none.	
Croup.....5 (2 m., 3 f.)	none.	none.	
Bronchitis.....11 (5 m., 6 f.)	2 (1 m., 1 f.)	3 (2 m., 1 f.)	
Whooping Cough.....1 (0 m., 1 f.)	none.	none.	
Measles.....2 (2 m., 0 f.)	none.	none.	
Diarrhoeal diseases of chil., 11 (6 m., 5 f.)	3 (1 m., 2 f.)	none.	

### MORTALITY IN CITY AND COUNTRY.

	In Ten Cities,	In Cities, Villages and Towns
	Pop. over 5,000 each	of less than 5,000 Pop. each.
	Total Deaths 1,000 Living	Total Deaths 1,000 Living
Tuberculosis.....45 (22 m., 23 f.)	1.39	26 (14 m., 12 f.) .34
Diphtheria.....23 (9 m., 14 f.)	.71	20 (11 m., 9 f.) .26
Pneumonia.....25 (13 m., 12 f.)	.77	16 (7 m., 9 f.) .21
Enteric Fever.....28 (17 m., 11 f.)	.86	27 (18 m., 9 f.) .36
Scarlatina.....17 (10 m., 7 f.)	.52	4 (1 m., 3 f.) .05
Croup.....5 (2 m., 3 f.)	.15	10 (3 m., 7 f.) .16
Bronchitis.....16 (8 m., 8 f.)	.49	13 (7 m., 6 f.) .17
Whooping Cough.....1 (0 m., 1 f.)	.01	6 (3 m., 3 f.) .08
Measles.....2 (2 m., 0 f.)	.06	none.
Diarrhoeal diseases of children.....14 (7 m., 7 f.)	.43	6 (3 m., 3 f.) .08

Below the average of this month for three years: Total mortality, Diphtheria, Pneumonia, Croup.

Greater than average mortality of this month for three years: Enteric Fever, Scarlatina, Bronchitis, Whooping Cough.

# PUBLIC HEALTH IN MINNESOTA.

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CHARLES N. HEWITT, M. D., Editor.

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THE OUTLOOK FOR 1892 is a very encouraging one in many important directions. The correspondence with officials charged with the inspection of persons coming into this country from abroad as respects their sanitary condition, which we publish in this issue (p. 69), marks another step forward in the maritime methods. But the most important of all is the action taken by the Local Board of Health of Portland, Maine, and the co-operation of the State Board. It will

be remembered that we have already called attention to the danger from infected persons landing in Portland from the Allan and Dominion steamships which make their entry at that port during the winter months. An inspection by the Immigration Bureau of the Treasury Department has, on request, been ordered, which is satisfactory, but cannot be of the real sanitary character of one made by the Local and State Boards of Health.

The Portland health officer inspects the *whole ship's company* before landing, so that the first-class passenger is subjected to the same sensible and necessary examination as the poor immigrant in the steerage. All honor to the Boards who instead of discussing the policy of a needful regulation, have in a quiet common-sense way enforced it. May New York and Boston "follow suit," and the sooner the better. There is real satisfaction and comfort in the example and action of the Maine Boards. They are doing their duty while accepting thankfully the national co-operation through the Immigration Bureau.

The cordial sympathy and promised co-operation of the Superintendent of the St. Lawrence Quarantine will go far to secure the adoption of like measures the coming summer in Canada.

If other inland State Boards will join Minnesota in pushing these important measures to fuller development and usefulness the maritime sanitary service of this continent will be in better shape next summer than ever before, as respects the detection, notification, and control of infectious diseases.

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#### THE STATE HEALTH SERVICE OF MINNESOTA.

The receipt of the census (1890) returns of population of minor civil divisions enables us to take closer account of this matter than ever before. It is one of the ways by which we can test the reality and efficiency of our methods, a very needful corrective in sanitary work.

Some villages have a very uncertain standing, and the terms "city," "village" and "borough" have no definite sanitary significance. For accuracy, therefore, we divide the whole population into classes, as follows:

Having a population of over 5,000, 11 cities; having a population of between 2,000 and 5,000, 15 cities and 5 villages; having a population of less than 2,000, 10 cities, 4 boroughs, 252 villages and 1,331 townships.

There are therefore in Minnesota, 297 cities, villages and boroughs and 1,331 townships, or a total of 1,628 localities in which the law requires a Local Board of Health.

There are 36 cities, 215 villages, 4 boroughs and 1,314 townships, or a total of 1,569 localities in which are active Local Boards of Health in responsible relation with the State Board of Health; and there are 42 villages and 17 townships, or a total of 59 localities (3.6 per cent. of the whole number), where no Board of Health has as yet been organized, or where it has not been active though formally organized.

It is proper to state that most of these are organizations not yet a year old, and nearly all of small population. The Secretary is corresponding with the local authorities in all and the Board of Health organization will not be long delayed.

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**C**HANGES IN THE STATE BOARD OF HEALTH.—The Private Secretary of the Governor writes January 20th: "The Governor has appointed Dr. Chas. F. McComb, of Duluth, in place of Dr. Vespasian Smith, (term expired), and Dr. W. J. Mayo, of Rochester, in place of Dr. E. J. Davis, of Mankato, (term expired). The other members of the Board whose term expired were re-appointed."

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**S**CARLET FEVER is on the increase. See on page 70 instructions for its prevention and control. This paper enlarged, will be issued as a circular immediately and sent to all localities where this disease exists. Send to the Secretary for as many copies as you can distribute to advantage.

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**A**VISITOR FROM MAINE.—A very encouraging example of the relations which are making State Boards of Health voluntary parts of a true National Health Service came to us in a visit from Dr. Charles D. Smith, of the State Board of Health, of Maine, sent by his Board to investigate our work in the production of calf vaccine. He studied very carefully every detail of the process accepted re-vaccination directly from the calf, and takes home with him "points" for trial.

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**I**S LEPROSY CONTAGIOUS?—The English Commission of Leprosy is about ready to report. The British Medical Journal sums up its conclusions "That the census returns will show a marked relative if not absolute decrease of the disease in India. As to the question as to the actual amount and practical risk of contagion it seems likely that it has been much overrated, and that contagion is rather theoretically possible than practically probable. There is a great amount of evidence already in favor of the non-hereditary character of the disease; authentic congenital cases have apparently never been recorded." This confirms our experience in Minnesota after over twenty years of careful and detailed observation.

CHICAGO vs. TYPHOID FEVER is the title of the indictment proposed by a Massachusetts physician in a paper before the American Statistical Society, recently. The State Board of Health of Illinois have appointed Dr. Raueh, their old Secretary, to investigate and co-operate with the Health Commissioner of the city. It is safe to predict that just in proportion as this inquiry is thorough and detailed as to two subjects, *The exact whereabouts of the disease?* and *The disposal of the excreta of the sick of it?* will be its value as a study and its usefulness as against the infection. Water analysis, chemical and bacteriological, is secondary to the locating the cases: the disinfecting dejecta, the disposal of garbage, and the enforcing the simplest sanitary precautions. These things attended to, water analysis, beyond what can be made by any healthy eyes, nose and tongue, will be valuable and useful, but not absolutely needful evidence.

*The duty of medical men* in this work is prompt notice to the health officer of every case of typhoid fever in house or hospital, with co-operation in the matter of disinfecting dejecta. "Walking typhoid," which the French call "Typhoidette," will be the most dangerous form of the disease for self-evident reasons.

SANITARY INSPECTION IN NEW YORK HARBOR.—Dr. W. T. Jenkins, of New York City, succeeds Dr. W. H. Smith as Quarantine officer. The place is a political one and for many years was worth between \$50,000 and \$90,000. Dr. Smith has held it for the past ten years because the politicians could not agree who should succeed him. It is now salaried \$10,000 a year. The officer is quite independent, but his work is "checked" by the Immigration Bureau, employing medical men detailed by the Marine Hospital Service, practically to revise his decision.

#### INFECTIOUS DISEASES—THEIR WHEREABOUTS.

IN MINNESOTA.—(Our office register is a large map showing every city, borough, village and township. Infectious diseases are recorded by colored pins as soon as reported. This mark is not removed till the outbreak is disposed of).

*Diphtheria*—(January 28, 1892)—During January has been in 34 counties and 67 localities. In 16 counties but 1 locality was invaded; in 7 counties, 2 localities; in 6 counties, 3 localities; in 1 county, 4 localities, and in another county, 5 localities.

*Scarlatina* in the same month invaded 41 localities in 25 counties. The disease is following the average of our experience and will probably increase till May or June. (See fuller details under the mortality returns, p. 76).

#### IN OTHER STATES AND PROVINCES—*Small Pox.*

*Quebec* gains steadily on the small-pox epidemic. January 29, 1892, there were but 2 cases in 2 localities.

*Georgia*—The only data at hand are in the bulletin of M. H. Service of December 18: "Discharged, 50 cases and 40 suspects; 35 on hand, including 5 new cases; expect to end the outbreak by January 5th or 10th."

*Pennsylvania*—“Philadelphia, January 18, 1892.—Two children with small-pox; residents; origin unknown. Vaccination, isolation and disinfection.”

*New Jersey*—No further account of the small-pox reported last month.

*Michigan*—The reported small-pox noted last month was measles.

*West Virginia*—Dr. N. D. Baker, Secretary State Board of Health, January 11, 1892, reports: “One case small-pox in Archer township, Berkley county; origin unknown. Isolation and vaccination.”

*Wisconsin*—“One case varioloid in Lake Geneva, Walworth county; origin unknown. Isolation of patient and vaccination of all exposed persons.”

*California*—Two cases in harbor of San Francisco, December 22, on a steamship. Cases to Lazaretto and ship to quarantine.

*Mexico*—The Sanitary Inspector, M. H. S., Dr. Irwin, reports, Dec. 24: “I am reliably informed that in several States of Mexico the situation is much more grave (than at El Paso), as small-pox is epidemic there.”

*NOTIFICATION OF INFECTIOUS DISEASES FROM THE  
SEABOARD.*

WE are making faster progress in this important matter than we had dared to hope, as the following official correspondence testifies:

TREASURY DEPARTMENT,  
OFFICE OF SUPERINTENDENT OF IMMIGRATION,  
WASHINGTON, D. C., Dec. 28, 1891.

DR. CHARLES N. HEWITT, Secretary State Board of Health, Red Wing, Minn.:

SIR—Under date of December the 16th you ask if there is any immigrant inspection at Boston and other seaport cities similar to that at New York,

There is. We have an inspection at all points where immigrants are landed. Instructions will be issued to the immigrant stations to forward to your Board the same immigrant reports as are forwarded from New York.

Very respectfully,

W. D. OWEN,  
Superintendent.

TREASURY DEPARTMENT,  
OFFICE OF THE SUPERVISING SURG.-GEN., M. H. S.,  
WASHINGTON, D. C., Dec. 28, 1891.

DR. CHARLES N. HEWITT, Secretary State Board of Health, Red Wing, Minn.:

SIR—I have the honor to acknowledge the receipt of your letter of the 25th instant, and in reply have to state that Dr. Mulheron, the sanitary inspector at Detroit, has been instructed to transmit to you the number, the character, and the local destination of immigrants passing his inspection who are bound for the State of Minnesota.

Respectfully yours,

WALTER WYMAN,  
Supervising Surgeon-General, M. H. S.

Under date January 2, 1892, Dr. Montezambert, Superintendent of the Grosse Isle Quarantine Station on the St. Lawrence, writes in reply to an inquiry: "There is no reason that I know of why steamships coming to Canadian points should not be obliged to furnish lists with all the particulars you desire as to the passengers they may have on board. Your success with the United States Bureau of Immigration in N. Y. Harbor should encourage hopes of complete reports from all points on this side. I will do all I can to help you with our people. I had already referred to the matter and to what you have already achieved therein, in my annual report made out just before your letter came."

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**S**CARLET FEVER (called also Scarlet Rash, Canker Rash, Malignant Sore Throat, etc.) is one of the infectious diseases distinguished by its peculiar rash or "eruption." The essential facts of this disease needful to be known for its prevention or restriction are:

*First—That its special infection is developed in the eruption in the skin, and given off thence to persons and clothing, and to bedding and other things in occupied rooms, and that it continues to be given off constantly till the skin is entirely well and all scurf or scurfiness has disappeared.*

*Second—That the slightest attack of the disease in one child may provoke a severe attack in another exposed to it, and that when it is epidemic a large proportion of the cases are often of so slight a type as not to be recognized at first, or, often, till the infection has been given to others.*

*Third—The period of "incubation" (time from taking the infection till the first symptoms appear) is rarely longer than seven days (one week), sometimes but a few hours.*

*Fourth—The patient is infectious, and so dangerous to others, for at least forty days and as a rule for seven or eight weeks, i. e., till the skin is entirely well and free of scurf, particularly on the palms of the hands and soles of the feet.*

*Fifth—The infection preserves its virulence in clothing and bedding hung up in closets or packed in trunks, clothing of the patient or his attendant or others exposed to him. So stored, the infection clings to such things, sometimes for months, ready, when the article is shaken in the air, or worn, to float off and infect the nearest child.*

*Sixth—Boiling water or a strong solution of quicklime will destroy this infection in clothing or bedding, and the last will do the same for floors and walls if freely applied. On the person of the sick a simple ointment (one part mutton tallow and two parts fresh lard melted separately and mixed thoroughly till cold) is the best and easiest means of limiting the spread of the infection. Used all over the body it does two things—relieves the fever and itching of the rash, and confines the loose particles of skin containing*

*virus to its surface or to the body clothing or the sheets of the bed thus preventing its escape into the air.*

The above brief of needful facts is italicised to impress their importance upon Boards of Health and the mothers of families. They are the foundation upon which rest the measures we are to take to prevent or control scarlatina. It is evident from the above that the measures best adapted to the safety of the infected family and the community are isolation of the sick, with the nurse, from all association with the family or other persons, in the most secluded room available and outside the family if possible. (Where isolation hospitals do not exist this is very difficult). The room should contain no more furniture, carpets, rugs or window hangings than are required for the use and comfort of the sick. All clothing, bedding and other needful things should be kept scrupulously clean. (Never use feather beds or comforters, but hair or straw mattress and blankets). The nurse should have two calico wrappers, covering the clothing from neck to wrists and feet, for alternate use. The ventilation, warming and lighting of the sick room should be independent of the rest of the house. (Currents of air from it would be the means of distributing the infection). The patient should be anointed from head to foot daily with some simple ointment (*see above*) and the clothing, both of patient and nurse, sheets and pillow cases, towels, handkerchiefs and the like, should immediately after removal, be plunged into hot water in a covered boiler and boiled for twenty minutes, when the virus they may have contained will be killed and all danger from that source removed. Dishes used in the sick room should be treated to boiling soap suds as soon as used, and food from the sick room burned.

*The well children* of the infected family are best cared for in other families where there are no children, and isolated there for at least a week before being permitted to go to school or on the street. Any who get sick are immediately returned to the home—for the time being a hospital. After the recovery of the sick from scarlatina, if the above precautions have been faithfully taken during the entire sickness, the disinfection necessary will be that of the room, bedding and furniture, and of the clothing last worn by patient and nurse. All things that can be boiled should be soaked in a vessel of hot water *in the room* and then boiled as above directed. Before cleaning the room saturate the air with steam from hot water, then wash all furniture with scalding soap suds to which has been added "washing soda" freely; then put the furniture out of doors to dry. (Upholstered furniture, feather beds and pillows are difficult of disinfection and must be treated as advised by the health officer in each case). The floor, walls and ceiling of the room should be treated to *hot fresh lime water\** with a whitewash brush. If there is paper on the wall this method will disinfect and make its removal easy. (All paper scraps and dust should be

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\* LIME WATER is the clear solution of quick-lime. Take best quick-lime in lumps, put in a pail, pour on one-third as much of water, cover closely and slack till it is a fine powder or creamy fluid; one part of this to three of water will make a saturated solution. Add water in that proportion to the mixture, stir well and then pour on half tea cup of kerosene, which will protect it from the air and preserve its strength. Use the solution as needed, and the solid matter can be made into whitewash or thrown into the sewer or outhouse.

burned). These things done, open the windows, keep up the fire and dry the room. Ventilate in this way for two or three days, if possible, then scrub and clean the floor and oil or paint it, repeat the whitewashing of the walls and ceiling.

*Disposal of the Dead of Scarlatina.*—Immediately after death the body should be wrapped in a sheet saturated with strong lime water and put into a tight coffin. If the weather permits it should be cooled to freezing as soon as possible. When coffined it should be removed directly to the grave with no other assistance than is required for decent and private burial. This is necessary to avoid infection from the body of the dead.

*The Relation of Schools and Public Gatherings to the Spread of Scarletina.*—This disease caused nearly seven per cent. of the total mortality by infectious diseases in the schools of the State during the past four years, and 33% of the total mortality from this cause at all ages, was at school-going age.

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#### DISEASES OF DOMESTIC ANIMALS.

*The Cattle and Meat Inspection*, in the Chicago slaughter houses, by the Inspectors of the Agricultural Department, is of little value as a protection to the domestic meat supply, in the important particular that the meat be from a healthy animal. The writer has visited, and watched the process in, Chicago and Kansas City, and made the acquaintance of the gentlemen in charge as government inspectors. Not all the cattle slaughtered at these places are inspected before or after death, nor is it possible with the present force and methods, to do the inspection thoroughly, or even fairly well. This a cursory observation at either place will make clear to any one at all competent to judge.

It must not be forgotten that this inspection service was devised primarily to quiet unjust foreign criticism and exclusion of stock and fresh meats in the European markets. A reading of the act suggests what is probably the truth, that inspection for the domestic market or as the law puts it: "for interstate commerce," was a second thought as in practice it appears to be a secondary consideration.

A very curious practice of the service is that no instruction as to the character of the inspection has been issued to the veterinary surgeons, and they differ materially among themselves, as to the infectiousness of actinomycosis, tuberculosis and the danger of trichinosis. Practice is founded on opinion, but there ought to be some definite orders in matters of this kind if any known value is to attach to the work done.

The most of the dressed meats from outside the State, consumed in our State, come from Omaha and Kansas City. Chicago supplies chiefly the Eastern States.

We have been assured by reliable authority that lumpy jaw

cattle are slaughtered in large numbers for the Eastern market at Kansas City.

This matter of the supply of healthy meat is now the field of a bitter controversy between cattle dealers, butchers, and sanitary authorities, State and local. We publish two illustrations of the fact to-day, and shall not fail to keep it in the minds of our readers.

The lesson for Local Boards of Health, who are the guardians of this class of food, is to watch the slaughter houses in country as in town, and in all cases of doubt call competent advice before permitting reasonably suspected animals to be slaughtered.

*Abattoir*.—There is not a village, much less a city, in the State in which the interests of the butchers and of the public would not be benefited by requiring all slaughtering in one place, under the inspection of the Local Board of Health.

The example of Winona and other cities proves this advantage.

**L**UMPY-JAW (ACTINOMYCOSIS) OF CATTLE IN THE COURTS OF ILLINOIS AND MINNESOTA.—The suit brought by certain Chicago butchers and the Peoria Whiskey Trust to raise the quarantine put by the Illinois Cattle Commission on some of their slop-fed, lumpy-jawed cattle has resulted in the disagreement of the jury. The commissioners are threatened with a new suit, but continue to isolate and "tank" all the lumpy-jawed stock they find. A very healthy popular sentiment is coming to the support of the Board. They are greatly embarrassed by the uncertain position of the chief of the Bureau of Animal Industry and therefore of the Department of Agriculture on this question, and by the unsettled relations of the inspection work of the general government to the efforts of State and Municipal Boards for the protection of the domestic meat supply.

**LUMPY-JAW IN MINNESOTA.**—There is good reason to believe that numbers of cattle suffering from this disease get into the meat supply of our own State. An aggravated instance was detected and prosecuted this month by the health officer of Cannon Falls, Goodhue County, Dr. H. E. Conley. The party who slaughtered the animal and sold the meat to dealers in Cannon Falls stood trial, was convicted and paid a fine of \$25.00 and costs. The party who owned the animal and sold it for slaughter came to trial, but the affected jaw had, meanwhile, been examined and the disease recognized. After consultation with the Secretary of the State Board he became satisfied that he had done wrong, confessed judgment and paid his fine. This is the third conviction for this offense in Minnesota. The first was some years ago, in St. Paul. The Health Commissioner, Dr. Hoyt, brought a butcher into court for exposing such meat for sale as healthy meat. The butcher was so sure of a verdict that he waived a jury trial and submitted the matter to the judge. After hearing the evidence of both sides the judge laid a fine of \$100.00, and the city council added two more inspectors of cattle and meat, to the staff of the health office. This was, so far as the writer knows, the first conviction for this offence in the West, on complaint of a health officer.

**VITAL STATISTICS.**—The issue of certificates with the original reports, to Clerks of the District Court, is progressing as rapidly as the entire force of the Secretary's office can verify and prepare them.

More than 1,600 different Clerks and Health Officers are required to send their reports *monthly* to this office. Much the largest proportion do so, and if all did it their supplemental report, with that of December, would not occasion much delay here. Our greatest difficulty is with duplicates, and returns for villages by Town Clerks, and for towns by Village Recorders, due, largely, to new and changed village organizations. Despite all these difficulties the whole number of certificates of returns for 1891 up to January 29, 1892, (when the books were closed till the certificates have been completed) will be issued by February 10th. This done returns received since that date will be recorded and corrected. As soon as possible certificates will be issued for them also.

**THE MINNESOTA VACCINE STATION, for the production of calf lymph,** under the personal direction of the Secretary of the State Board of Health.

VACCINE ON HAND JANUARY 1, 1892:

Points.....	1,500
Tubes .....	38
VACCINE COLLECTED DURING MONTH:	
Points.....	785
Tubes .....	26

Total points..... 2,285

VACCINE DISTRIBUTED DURING MONTH:

To the State School, Owatonna,      points.....	50
To the State Prison, Stillwater,      " ..... 380	380
To the Maine State Board of Health,      " ..... 45	45
To physicians,      " ..... 30	30

Leaving in stock for emergency or current demand, points..... 1,780

January 25, 1892.

C. N. H.

**INFECTIOUS DISEASES REPORTED DURING THE MONTH.**

DECEMBER, 1891.

DISEASES OF MEN.

Diphtheria .....	{ cases, .....	*155
	{ deaths, .....	41
Scarlatina .....	{ cases, .....	†269
	{ deaths .....	24

\* 61 cases, 11 deaths, in St. Paul and Minneapolis.

† 188 cases, 18 deaths, in St. Paul and Minneapolis.

## DISEASES OF ANIMALS.

Cases of glanders remaining isolated or not

accounted for Dec. 1 .....	.....	31
Reported during the month.....	.....	3
Killed " "	.....	1
Died " "	.....	0
Released " "	.....	5

Remaining isolated or not accounted for Jan. 1, 1892..... \*28

\* NOTE.—Most of these are cases exposed to possible infection, and isolated for further observation.

**D**ISTRIBUTION AND MORTALITY OF THE MORE IMPORTANT DISEASES IN MINNESOTA.—Month of December, 1891, (includes all December returns to January, 20, 1892.)

POPULATION, (CENSUS OF 1890.)

STATE .....	.....	1,301,826
1. First Class (cities of over 100,000), St. Paul and Minneapolis.....	.....	297,894
2. Second Class (cities of between 15,000 and 50,000), Duluth and Winona.....	.....	51,323
3. Third Class (cities of between 5,000 and 15,000), Stillwater, St. Cloud, Mankato, Faribault, Red Wing, Brainerd and Rochester .....	.....	51,622
4. Fourth Class (20 cities and villages of over 2,000 and less than 5,000 population) ..	.....	60,319
5. Fifth Class (cities, villages and townships, population less than 2,000).....	.....	840,668

## MORTALITY IN STATE.

Total, December, 1891.	Localities Invaded.	No. Counties Invaded.	December Av. 3 Years.	An'l Rate per 1,000 Living
From all causes...999 (557-138) *	(557-138) *		1039.	9.61
Tuberculosis..... 71 (31-40)	30	27	83.0 (av. 2 yrs.)	.77
Diphtheria..... 51 (26-25)	23	19	69.3	.73
Pneumonia..... 93 (59-34)	26	28	74.0	.69
Enteric Fever..... 29 (18-11)	14	13	30.3 (av. 2 yrs.)	.28
Scarlatina..... 39 (23-16)	9	9	24.6	.22
Croup..... 20 (13-7)	12	11	25.3 (av. 2 yrs.)	.23
Bronchitis..... 28 (17-11)	9	9	28.3	.26
Whooping Cough..... 5 (3-2)	4	3	1.6	.01
Measles..... 8 (2-6)	2	2	7.3	.06
Diarrhoeal diseases of children..... 21 (11-10)	9	9	12.6 (av. 2 yrs.)	.11

\* 4 unknown.

## MORTALITY BY CLASSES OF POPULATION.

1—First Class.	2—Second Class.	3—Third Class	4—Fourth Class.
From all causes.... 402 (224 m., 175 f.)	47 (7 m., 20 f.)	38 (25 m., 15 f.)	46 (22 m., 24 f.)
Tuberculosis..... 23 (14 m., 14 f.)	3 (3 m., 0 f.)	4 (2 m., 2 f.)	3 (2 m., 1 f.)
Diphtheria..... 8 (2 m., 6 f.)	4 (3 m., 1 f.)	1 (1 m., 0 f.)	1 (0 m., 1 f.)
Pneumonia..... 52 (37 m., 15 f.)	3 (2 m., 1 f.)	2 (2 m., 0 f.)	4 (1 m., 3 f.)
Enteric Fever..... 13 (9 m., 4 f.)	2 (1 m., 1 f.)	none.	7 (3 m., 4 f.)
Scarlatina..... 19 (12 m., 7 f.)	2 (1 m., 1 f.)	none.	1 (1 m., 0 f.)
Croup..... 5 (4 m., 1 f.)	1 (1 m., 0 f.)	none.	none.
Bronchitis..... 13 (8 m., 5 f.)	1 (0 m., 1 f.)	2 (1 m., 1 f.)	3 (2 m., 1 f.)
Whooping Cough... 1 (1 m., 0 f.)	none.	none.	1 (1 m., 0 f.)
Measles..... 7 (1 m., 6 f.)	none.	none.	none.
Diarrrh. dis. of chil.. 7 (4 m., 3 f.)	1 (1 m., 0 f.)	none.	3 (1 m., 2 f.)

\* 3 unknown.

## COMPARATIVE MORTALITY IN CITY AND COUNTRY.

	In 31 Cities and Villages, Pop. over 2,000 each		In Cities, Villages and Towns Pop. less than 2,000 each	
	Total Deaths	Deaths to 1,000 Living	Total Deaths	Deaths to 1,000 Living
Deaths from all causes.....	533 (296 m., 231 f.*)	11.07	466 (261 m., 204 f.*)	6.75
Tuberculosis.....	38 (21 m., 17 f.)	1.0	33 (10 m., 23 f.)	0.48
Diphtheria.....	14 ( 6 m., 8 f.)	0.37	37 (20 m., 17 f.)	0.54
Pneumonia.....	61 (42 m., 19 f.)	1.61	32 (17 m., 15 f.)	0.46
Enteric Fever.....	22 (13 m., 9 f.)	0.58	7 ( 5 m., 2 f.)	0.10
Scarlatina.....	22 (14 m., 8 f.)	0.58	17 ( 9 m., 8 f.)	0.25
Croup.....	6 ( 5 m., 1 f.)	0.16	14 ( 8 m., 6 f.)	0.20
Bronchitis.....	19 (11 m., 8 f.)	0.50	9 ( 6 m., 3 f.)	0.13
Whooping Cough.....	2 ( 2 m., 0 f.)	0.05	3 ( 1 m., 2 f.)	0.04
Measles.....	7 ( 1 m., 6 f.)	0.18	1 ( 1 m., 0 f.)	0.01
Diarrhoeal diseases of children.....	11 ( 6 m., 5 f.)	0.29	10 ( 5 m., 5 f.)	0.15
* 3 unknown.				* 1 unknown.

COMMENTS.—(Those who are interested in "current vital statistics" as indicators of disease prevalence, distribution and mortality, will note that the above tables give data which have been unattainable heretofore and will be interested in the uses of which they are capable.)

The record for December, 1891, compares favorably with the average of the preceding four years for the same month.

The records of *tuberculosis*, *diphtheria*, *enteric fever* and *croup*, are below the average of the same month for three years, while *pneumonia*, *scarlatina*, *measles* and *bowel affections of children* are above the same average.

*Influenza* appeared in several places in the State in December, but its influence on mortality is most apparent in that of *pneumonia*, which is twice as great as in November, and larger than the average of December for three years.

*Scarlatina* has begun its usual rise in December, and if it follow the average prevalence of previous years will increase till May.

The mortality of the month as a yearly rate is as follows, and exhibits the relations of the mortality in classes of the population:

State at large.....	9.34 dead to 1,000 living
Cities of First Class.....	16.64 "
Cities of Second Class.....	11.13 "
Cities of Third Class.....	8.93 "
Cities and villages of Fourth Class.....	9.29 "
Cities, villages and townships of Fifth Class.....	6.75 "

Group the cities and villages, of over 2,000 population each, together (a population of 461,158 people living in 26 cities and 5 villages) and the annual mortality, (based on December returns) is 14 dead to 1,000 living, while the population living in centres under 2,000 population (our 5th class) had a mortality of only 6.75 to 1,000 living.

## MINNESOTA WEATHER SERVICE.—REPORT FOR DECEMBER, '91.

FURNISHED BY MINNESOTA STATE WEATHER SERVICE, J. H. HARMON, DIRECTOR.

## ATMOSPHERIC PRESSURE—IN INCHES.

Monthly mean, 29.93; Minimum observed, 28.88 at Duluth, on the 4th; Maximum observed, 30.68 at Rolling Green on the 11th; Range for State, 1.80.

## TEMPERATURE—DEG. F.

Monthly mean, 25.1; Highest monthly mean, 30.7, at Mankato; Lowest monthly mean, 13.2, at St. Vincent; Maximum, 57, at Kinbrae, on the 12th; Minimum, -27, at St. Vincent, on the 26th; Range for State, 84; Greatest local monthly range, 7, at St. Vincent; Least local monthly range, 55, at Minneapolis; Greatest daily range, 47, at St. Paul, on the 27th; Least daily range, 3, at St. Paul, on the 14th and 16th.

## PRECIPITATION—IN INCHES AND HUNDREDTHS.

Average for State, 2.68; Greatest, 4.73, at Farmington; Least, 0.14, at Crookston.

Prevailing direction of wind, south.

Solar Halos: Morris, 26th; Farmington, 8th, 11th, 26th; Red Wing, 13th, 20th; Rolling Green, 5th.

Auroras: Pine River Dam, 6th; Montevideo, 31.

Lunar Halos: Red Wing, 19th, 21st; Rolling Green, 16th.

Thunder Storms: Rolling Green, 2d; Kinbrae, 2d.

## FORECASTS.

According to the report of displaymen, the Weather Bureau forecasts during the month for Minnesota, were verified as follows: Weather, 88.3 per cent; Temperature, 85.5 per cent; Weather and temperature combined, 87.2 per cent.

## REMARKS.

Both the temperature and precipitation were in excess of the normal.

# PUBLIC HEALTH IN MINNESOTA.

CHARLES N. HEWITT, M. D., Editor.

OFFICIAL PUBLICATION OF THE STATE BOARD OF HEALTH  
AND VITAL STATISTICS,

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THE ELECTION OF TOWNSHIP BOARDS takes place next month (second Tuesday in March). There are 1321 townships in which these elections take place.

The following table shows the per cent. of chairman and clerks re-elected for the years 1889-90-91.

	1889	1890	1891
Chairmen re-elected - - -	51%	57.3%	56.4%
Clerks re-elected - - -	79%	80.7%	80.3%

The clerks are retained because of their familiarity with the routine of the clerical business of the town, the same rule should apply to chairmen, and with even more force if they prove efficient.

ent, for they are the acting Health Officers, in the absence of a physician, and have, in that capacity very responsible duties to perform.

Township clerks will please fill out the blanks already sent them for the purpose. This will greatly aid the secretary in establishing working relations with the new men. He is largely dependent on the courtesy and promptness of the old clerks in filling out carefully the blanks provided and forwarding them by first mail. The mere registration of 1640 new names so that there shall be no mistake in post office address is no easy task.

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### SCARLATINA is increasing in distribution if not in mortality.

Attention is therefore called to the complete circular on the management of the disease in the appendix to this number. It is issued also for popular distribution. Apply to Local Boards of Health, or to the Secretary S. B. of H., Red Wing.

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TYPHUS IN NEW YORK CITY. With lively memories of occasional outbreaks in this country, and traditions of its fearful work in England during the last century, many people beside Health Officers, were startled by the official announcement that Typhus had appeared in the tenement-house population of New York.

Its infection passed quarantine in the persons, or more likely in the clothing, of some Russian Jews, January 31st.

It appears that they were expelled from Russia October 6th, 1891; went to Constantinople October 8th, and were there three months. They went thence to Smyrna in Asia Minor, arriving on the 25th of December and ordered off on the 27th. January 1st they arrived at Marseilles, were there two days; then went to Naples, were there four days, sailing January 7th for New York in the steerage of the steamer Massilia. The voyage was a hard one, 23 days long, and several of these immigrants died on the passage. The ship was examined by the most competent medical inspector now at New York Quarantine (Dr. Skinner) and passed as free from evidence of infections diseases. Some of the immigrants were detained by the United States Immigration Service, at Ellis Island, as violating the immigration laws in having no visible means of support, others as having Typhoid fever and Pneumonia; all the rest were permitted to go to tenement houses in the city,

It appears most likely, from this history, that these people were infected en route, and (assuming that the incubation of the disease is not longer than 20 days)—from their baggage.

No suspicion was attached to them till they had been in the city lodgings a week, when one of the physicians employed by the Hebrew Benevolent Society found doubtful cases, and calling a Medical Inspector they agreed that the sick had Typhus. The City Board of Health adopted the following measures to control the disease: Immediate removal of the sick to the City Infectious Disease Hospital on North Brother's Island; immediate isolation of the other Hebrews and the houses they occupied, and of all persons exposed to them. This done, a strict search was made for those of the immigrants who were not with the main body, and this was done by comparing the list with the ship's, and by the report of persons familiar with the party. Fortunately nearly all were together, and the few that were away were almost all traced. While this search was going on reports of sick Italians brought out the fact that some hundreds had come over in the same ship and had scattered into more than thirty localities in the United States. It became very important to know if they had been exposed to the infection of Typhus, and if any had been, or were now sick. A careful search has, so far, failed to show that the Italians have suffered at all. This only fortunate event in the whole series to date, is due, it seems, to two causes; the Italians refused to have any association with the Hebrews, and all association was further prevented by their respective positions on the ship.

WHO IS RESPONSIBLE FOR THE INTRODUCTION OF TYPHUS FEVER INTO NEW YORK? Is the first question which suggests itself after what has occurred. Let's see how the matter stands in the light of present knowledge. It has never been the rule at New York or any other quarantine to disinfect all baggage of immigrants unless there was reasonable evidence that they, or it, had been exposed to infection. Then it must be understood that there has for years been a claim that the old National Board of Health was thoroughly posted as to the whereabouts of infection abroad, through its elaborate system of consular notification.

That privilege it is claimed now is the possession of the Marine Hospital Service. One can readily understand that if our consuls are alive to the matter and able to get the truth, they might be of use in just such cases as these, but it must be in some other way than by routine red tape, as it is safe to think most of this information comes by the latter route—long after its usefulness is passed except as a matter of history.

It does not appear that there was any consular information about these unfortunate 250 odd Jews. If there had been, it would have been considerable, for the consuls at Odessa, at Constantinople, at Smyrna, at Marseilles and Naples, acting under their important instructions, must have contributed enough information to have enabled the Chief of the Marine Hospital Service to send very useful facts to the Health Officer of New York long before the voyage of twenty-three days was over. Will Dr. Wyman let us know just how much he could have told Dr. Jenkins about the *Massilia*'s passengers before she arrived? It will not do to saddle all the blame upon the Health

Officer of the port of New York, though that is the easiest thing to do. It is proper to state that when the Massilia arrived his predecessor had not yet turned over the inventories which were needed to enable him to know what were the forces and material at his command. The methods of the work were those of long usage which he must rely on subordinates familiar with them to carry out. The inspection of the Massilia was done by Dr. Skinner, his deputy who has had large experience in his position and seen and cared for typhus there, the last case within a few months. The sworn statement of the captain and surgeon with his own personal inspection failed to afford him any evidence of typhus, and following the rule of the station he did not isolate the immigrants, but notified the U. S. Immigrant authorities of sickness among them, and the sick were taken from the ship's wharf to Ellis island. It should be added that no one else found cause for suspicion till the 10th of February.

This much in simple justice to the Quarantine service of New York State in the harbor of the City.

*The Situation March 2nd was as follows:* "One hundred and twenty-eight cases to date, ten outside the Massilia's passengers." Ten cases outside the Massilia's passengers is the most serious item because it means that the infection of the disease has attacked residents of the city. The first will be those in most intimate relation with the immigrants but no one can tell when or how it may reach other citizens who will not be suspected till discovered in home, lodging or hospital. The danger here will be proportionate to the promptness and thoroughness with which the original cases were dealt with and the isolation for observation of all in any way exposed to the original immigrants or to persons or things infected since. One need not be a Health Officer to realize how large a share of danger, in cases like the Russian Jews, escapes all calculation and control, and yet the danger there has evidently been reduced to isolated exposures and the medical inspectors of the New York City Board of Health must be trusted to follow up every indication with thorough investigation and fearless action.

*Danger outside New York City at present,* is the slight one that some who have caught the infection may leave and develop the disease in another city. It thrives in crowds with filth and poverty, but shuns the country. Against this we have the increase of vigilance by sanitary authorities in the city and all over the country. The writer cannot estimate it outside our own state but here the duty is summed up in the careful oversight of immigration.

For the best description of typhus fever and its distinction from enteric fever (wrongly called typhoid) see Watson's Principles and Practice of Physic, Lecture LXXXIV.

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#### DISEASES OF DOMESTIC ANIMALS.

GLANDERS is more nearly extirpated now than ever before in the history of the State. Health Officers and chairmen of Local Boards of Health seem likely to forget that this great success has been secured only by a persistent and hard fight since 1885, and that constant vigilance is essential.

There have always been three chief sources of danger which

are as real and active to-day as ever. In order of their importance they are as follows:

1. The importation, from adjacent states, of infected or suspected horses or mules deliberately "doctored" to deceive, or collected at random without any care in that respect. This is as true of the common horse as of the herds of ponies from Dakota and beyond. These last come in during the fall months, the others at all seasons of the year in country districts, for sale or trade.

2. The distribution of glandered or suspected horses and mules, by contractors, or the livery keepers, of the great cities of our own State. This has repeatedly happened.

3. Carelessness of Local Boards in dealing with outbreaks of glanders in their own districts, chiefly in not isolating animals who have been exposed to those whom they have killed for that disease. Such animals should always be restricted to the farm, barn or pasture of their owners and at their risk and expense till a sufficient time has elapsed to determine whether they have the disease.

We have repeated the warning here given, over and over again, but it has not been heeded as it ought to be. If you were going to buy a piece of land you would demand an abstract of title and a warranty deed but in a horse trade of the kind here referred to—the most risky and dangerous possible—no such precautions are taken. The buyer often does not know the seller, and asks no warranty of freedom from infectious diseases, or of soundness. He is looking for a "bargain" and "takes chances" that concern him alone *if the animal is free of infectious diseases*, but a large majority of such bargains are possible because owners know or suspect trouble. All this is common experience, now for the remedy so far as Local Boards of Health can administer it.

It is their duty to ward off infectious diseases of animals, as of men, and as respects the diseases of the horse there is no surer means than a strict oversight of the traders above referred to. In this one way most of them can be found and required to satisfy the Board of Health that their animals are free from infectious disease.

It is a notorious fact that glanders comes most frequently in this way, and the boards have the same right to be satisfied of their safety as to demand, as we now do, that immigrants coming into a locality of the State are free from the infection of infectious diseases of men.

When any such animals are, in the opinion of the local board, reasonably suspect of infectious disease, the board should isolate them in the care and at the expense of owner, or care-taker, till measures can be taken to ascertain the facts. If dealers in stock of all kinds can be made to understand that

they are responsible in damages (Section 8, Chapter 200, Gen. Laws of 1885) for not reporting such cases to the Local Board of Health of the town, village or city where they are kept, and that they are to be held to a strict accountability, there will be much less trouble in preventing this common source of danger to the most valued of domestic animals, the horse.

Another important help to safety will be the notification, by one board to others interested, of the presence, or passage, of such herds of animals. If it were a matter of horse-stealing, there would be no question as to the duty or advantage of such notification. Why should there be any when it is a question not only of the life of one animal but of others, few or many, exposed by him?

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**C**OMPENSATION FOR GLANDERED ANIMALS KILLED BY ORDER OF A LOCAL BOARD OF HEALTH:—Despite repeated explanations, the wording of the law and the opinion of the Attorney General that a glandered animal is utterly worthless, township Boards of Health occasionally appraise such an animal and send the bill to the State Board.

For the information of all concerned the following statement is submitted. To condemn an animal suspected to be glandered the local Board of Health, at the expense of the town, village or city, get the written opinion of a veterinary surgeon in whom they have confidence. If it is that the animal in question has the glanders the Board issue an order, on the proper blank, for its destruction and burial allowing to the owner for such killing and burial "an equitable sum" which custom has fixed at from three to five dollars.

A very wise and satisfactory plan more and more adopted by country Boards is, in cases where there is no doubt in the minds of the Board, or of the owner that the disease is glanders, if the last will sign an admission of the fact and a request for the slaughter, to allow him the money that would have been paid to the veterinary to settle the dispute, in addition to the killing and burial fees. Much hard feeling is in this way often prevented with no more cost to the township than an official inquiry would involve.

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**L**UMPY-JAW (ACTIMONYCOSIS) must not be lost sight of as an infectious disease of cattle, but if any one has doubt of such infectiousness he will surely agree that it would be dishonest to sell the meat from a lumpy-jaw steer as perfectly healthy meat, and he would be angry and complain of a butcher who served such meat to his family as, and at the price of, the best. This comment is drawn out by the attempt of interested parties to befog the real question by raising doubts of the infectiousness of the disease. While we have no doubt on that score it

would be perfectly safe to permit any butcher who wishes to do so to offer lumpy-jawed, or tuberculous meat for sale provided that it be placarded as such, and the head of the lumpy-jawed steer and the lung of the tuberculous cow be exhibited at the same time. Such an advertisement would be the only honest way to sell such meat but who knows the butcher bold enough to risk such an exhibition?

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### MINNESOTA WEATHER SERVICE.—REPORT FOR JANUARY, '92.

FURNISHED BY MINNESOTA STATE WEATHER SERVICE, J. H. HARMON, DIRECTOR.

#### ATMOSPHERIC PRESSURE—IN INCHES.

*Monthly mean*, 30.17; maximum observed, 30.85, at Morris, on the 18th; minimum observed, 29.55, at Duluth, on the 21st; range for State, 1.30.

#### TEMPERATURE—DEG. F.

*Monthly mean*, 7.4; highest monthly mean, 13.6, at Minneapolis; lowest monthly mean, -5.0 at St. Vincent; maximum, 54, at Mankato, on the 29th; minimum, -41, at Crookston, on the 18th; range for State, 98; mean maximum, 18.3; mean minimum, 0.4; greatest local monthly range, 87, at Leech Lake and Winnibigoshish; least local monthly range, 69, at St. Paul and Sheldon; greatest daily range, 41, at St. Vincent, on the 23d; least daily range, 3, at Duluth, on the 29th.

#### PRECIPITATION—IN INCHES.

*Average for State*, 0.37; greatest, 0.82, at Kinbrae; least, 0.02, at St. Paul.

#### WIND.

*Prevailing direction*, northwest.

#### FORECASTS.

According to the reports of displaymen, the Weather Bureau forecasts during the month for Minnesota, were verified as follows: Weather, 89.7 per cent; temperature, 83.9 per cent; weather and temperature combined, 87.4 per cent.

#### REMARKS.

In the northeastern section of the State the temperature was below the normal, elsewhere it was a trifle above the average for January. The precipitation was considerably below the average.

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### INFECTIOUS DISEASES REPORTED DURING THE MONTH.

JANUARY, 1892.

#### DISEASES OF MEN.

Diphtheria.....	cases.....	*172.	Deaths.....	56
Scarlatina.....	cases.....	†254.	Deaths.....	19

\* 71 cases, 25 deaths, in St. Paul and Minneapolis.

† 131 cases, 10 deaths, in St. Paul and Minneapolis.

#### DISEASES OF ANIMALS.

Cases Glanders remaining isolated or not accounted for Jan. 1.....	28
Reported during the month.....	2
Remaining isolated or not accounted for Feb. 1, 1892.....	*30

\*NOTE—Most of these are cases isolated on suspicion.

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### DISTRIBUTION AND MORTALITY OF THE MORE IMPORTANT DISEASES IN MINNESOTA.—Month of January, 1892, (includes all January returns to February 20, 1892.)

#### POPULATION. (CENSUS OF 1890.)

STATE .....	1,301,826
1. <i>First Class</i> (cities of over 100,000), St. Paul and Minneapolis.....	297,894
2. <i>Second Class</i> (cities of between 15,000 and 50,000), Duluth and Winona.....	51,323
3. <i>Third Class</i> (cities of between 5,000 and 15,000), Stillwater, St. Cloud, Mankato, Faribault, Red Wing, Brainerd and Rochester.....	51,622
4. <i>Fourth Class</i> (20 cities and villages of over 2,000 and less than 5,000 population) .	60,319
5. <i>Fifth Class</i> (cities, villages and townships, population less than 2,000).....	840,668

## MORTALITY IN STATE.

Total, January, 1892.	Localities Invaded.	No. Counties Invaded.	Average of 5 Years.	
			January No. of cases.	An'l Rate per 1,000 Living
From all causes.. 1202 (618-584)			1098.4	10.27
Tuberculosis..... 95 (44-51)	43	32	92.2 (av. 4 yrs.)	.86
Diphtheria..... 52 (29-23)	18	16	72.8	.68
Pneumonia..... 180 (92-88)	60	41	119.8	1.12
Enteric Fever..... 30 (21-9)	18	16	41.8	.39
Scarlatina..... 21 (8-13)	6	5	19.5 (av. 4 yrs.)	.18
Croup..... 17 (11-3)	5	5	17.8	.16
Bronchitis..... 52 (29-23)	14	10	41.5	.38
Whooping Cough.. 6 (3-3)	4	4	5.6 (av. 3 yrs.)	.05
Measles..... 5 (0-5)	2	2	8. (av. 4 yrs.)	.07
Influenza..... 97 (53-44)	67	41	59.6 (av. 3 yrs.)	.53

## MORTALITY BY CLASSES OF POPULATION.

	1—First Class.	2—Second Class.	3—Third Class.	4—Fourth Class.
From all causes ....	475 (262 m., 213 f.)	72 (34 m., 38 f.)	49 (25 m., 24 f.)	90 (52 m., 38 f.)
Tuberculosis.....	35 ( 19 m., 16 f.)	5 ( 4 m., 1 f.)	5 ( 2 m., 3 f.)	5 ( 2 m., 3 f.)
Diphtheria.....	22 ( 9 m., 13 f.)	5 ( 3 m., 2 f.)	2 ( 2 m., 0 f.)	1 ( 1 m., 0 f.)
Pneumonia.....	75 ( 36 m., 39 f.)	13 (11 m., 2 f.)	7 ( 5 m., 2 f.)	11 ( 7 m., 4 f.)
Enteric Fever.....	6 ( 5 m., 1 f.)	2 ( 1 m., 1 f.)	none.	5 ( 4 m., 1 f.)
Scarlatina.....	11 ( 4 m., 7 f.)	none.	none.	3 ( 2 m., 1 f.)
Croup.....	8 ( 6 m., 2 f.)	1 ( 1 m., 0 f.)	none.	none.
Bronchitis.....	82 ( 13 m., 16 f.)	1 ( 0 m., 1 f.)	4 ( 2 m., 2 f.)	1 ( 0 m., 1 f.)
Whooping Cough..	2 ( 2 m., 0 f.)	none.	none.	1 ( 0 m., 1 f.)
Measles.....	4 ( 0 m., 4 f.)	none.	none.	none.
Influenza.....	8 ( 4 m., 4 f.)	1 ( 0 m., 1 f.)	3 ( 1 m., 2 f.)	5 ( 4 m., 1 f.)

## COMPARATIVE MORTALITY IN CITY AND COUNTRY.

	In 31 Cities and Villages, Pop. over 2,000 each. 461,158 inhabitants.		In Cities, Villages and Towns Pop. less than 2,000 each. 840,668 inhabitants.	
	Total Deaths	Deaths to 1,000 Living	Total Deaths	Deaths to 1,000 Living
Deaths from all causes.....	686 (373 m., 313 f.)	14.11	516 (245 m., 271 f.)	7.43
Tuberculosis.....	50 (27 m., 23 f.)	1.32	45 (17 m., 28 f.)	.64
Diphtheria.....	30 (15 m., 15 f.)	.79	22 (14 m., 8 f.)	.31
Pneumonia.....	1.6 (59 m., 47 f.)	2.79	74 (33 m., 41 f.)	1.06
Enteric Fever.....	13 (10 m., 3 f.)	.34	17 (11 m., 6 f.)	.24
Scarlatina.....	14 ( 6 m., 8 f.)	.36	7 ( 2 m., 5 f.)	.10
Croup.....	9 ( 7 m., 2 f.)	.23	8 ( 7 m., 1 f.)	.11
Bronchitis.....	28 (18 m., 20 f.)	1.	14 (11 m., 3 f.)	.20
Whooping Cough..	3 ( 2 m., 1 f.)	.07	3 ( 1 m., 2 f.)	.04
Measles.....	4 ( 0 m., 4 f.)	.1	1 ( 0 m., 1 f.)	.01
Influenza.....	8 ( 4 m., 4 f.)	.21	89 (49 m., 40 f.)	1.28

State at large..... 11.23 dead to 1,000 living

Cities of First Class..... 19.66 "

Cities of Second Class..... 17.06 "

Cities of Third Class..... 11.51 "

Cities and villages of Fourth Class..... 15.18 "

Cities, villages and townships of Fifth Class..... 7.43 "

Group the cities and villages, of over 2,000 population each, together (a population of 461,158 people living in 26 cities and 5 villages) and the annual mortality, (based on January returns) is 18.11 dead to 1,000 living, while the population living in centres under 2,000 population (our 5th class) had a mortality of only 7.43 to 1,000 living.

*Comments*—The general mortality in January was 11.23 to 1,000 living, and greater than the average for this month for the last five years. The cause of the increase is evident.

*Influenza* made a larger record than in any previous January for three years, but its influence is even more apparent in the notable increase of mortality from diseases closely related to it. *Pneumonia* was twice as fatal as in the preceding month, and much more so than the January average of the last five years. *Bronchitis* makes a similar record. *Tuberculosis* was more fatal than in December, and than the average of this month. *Diphtheria* was about the same as in December, but much less than the January average for five years.

# SCARLATINA.

(SCARLET FEVER, SCARLET RASH, CANKER RASH, MALIGNANT SORE THROAT.)

## WHAT IS IT? HOW DOES IT SPREAD? HOW TO PREVENT OR CONTROL IT?

**NOTE**—This tract is for free distribution by Boards of Health, and others interested in the prevention and control of infectious diseases. Apply to any Health Officer, Local Board of Health, or directly to Dr. Hewitt, Secretary S. B. of H., Red Wing.

**S**CARLET FEVER is one of the infectious diseases distinguished by its peculiar rash or "eruption."

*Statistics*—The following condensed statement of the facts of the relations of *season, locality, age, sex and parent-nativity* to scarlatina is taken from the statistics of over 1,000 deaths from that cause in Minnesota, during the last five years. They have been carefully collected and collated. The name and address of every medical attendant is on record with the writer, and hearty thanks are due for the prompt and ready co-operation of his medical brethren in the completion and correction of the record. The obligatory notification of all outbreaks of the disease has contributed to the quickness and accuracy of our knowledge. In this way we have a solid and reliable collection of facts of practical every day value, which is constantly increasing. They contribute largely to the measures available for the prevention and control of this insidious and infectious disease.

*Annual mortality, average of four years, (1887-90) for Minnesota and Massachusetts:*

	Per cent to total deaths from all causes.	Deaths to 10,000 living.
Minnesota.....	1.44	1.6
Massachusetts.....	.87	1.6
1890.		
Minnesota.....	1.14	1.26
Massachusetts.....	0.45	0.87

*Seasonal prevalence, average of four years:*

Month.	Minnesota	Massachusetts	Month	Minnesota.	Massachusetts.
January.....	9.8%	13. %	July.....	4.68%	3.5 %
February....	11.68%	9.89%	August.....	6.08%	4.87%
March.....	10.75%	11.05%	September..	4.68%	4.9 %
April.....	10.75%	10.32%	October.....	5.62%	6.20%
May.....	12.15%	7.7 %	November...	7.48%	12.2 %
June.....	7.95%	7.6 %	December....	8.41%	9.78%
Spring.....				33.65%	31.48%
Summer .....				18.71%	18.28%
Fall.....				17.78%	19.37%
Winter .....				29.90%	31.25%

*In terms of age at death:*

Ages.	Minnesota, av'ge 4 yrs.	Massachusetts av'ge 27 yrs
Under 1 year.....	9.0%	.....
1-2 years.....	17.5%	.....
2-3 years.....	13.7%	.....
3-4 years.....	11.3%	.....
4-5 years.....	9.0%	.....
Under 5 years .....	65.4%	66.5%
5-10 years .....	24.6%	24.6%
10-15 years .....	6.1%	5.01%
15-20 years .....	2.3%	1.7%
20-30 years .....	0.0%	1.5%

Out of the 843 deaths in the four years, but 76 were under one year of age, and but 29 over fifteen years.

Of any one year of age the mortality is much the largest in the second year. By quinquennial periods the contrast is very striking, under 5 years, 65.4%; 5 to 10 years, 24.6%; 10 to 15 years, 6.1%; 15 to 20 years, 2.3%.

*At the school-going age, (5 to 20) 33% of the total mortality from this cause occurred—one-third of all the deaths.*

None of the dead were 30 years old.

It will be noticed that the greatest mortality is during the years when the child is usually confined to the house except when permitted at church, Sunday school, or public school.

*Sex of the dead.* In over 1,000 deaths, the females are in a majority so small that a decimal expresses it, .27%, one-fourth of one per cent.

*As to the distribution in county, village and city, average of four years.*

Locality.	Per cent of total deaths from all causes	Dead to 10,000 living	Per cent of total deaths by Scarlatina.
State.....	1.44	1.6	100.
Cities of over 100,000 pop (297,894)		1.9	27.0%
Cities, 15,000 to 30,000 (51,323)		1.4	3.31%
Cities, 5,000 to 15,000 (50,455)		1.5	3.79%
Cities, villages and townships, under 5,000 (900,987)		1.5	65.88%

*Parent nativity of the dead, average four years.*

Total.....	843	100. %
Both parents American born .....	203	24.09%
Both parents foreign born .....	483	57.29%
American father, foreign mother .....	75	8.90%
Foreign father, American mother .....	41	8.86%
Unknown parentage.....	41	8.86%

From the above facts, added to those of actual experience, it follows—

*That scarlatina is most fatal in young children under five years (65%).*

*That 33% of all deaths occur in school-going children.*

*That it has not proved fatal, in the last five years in Minnesota, to persons over thirty years of age.*

*That it is most fatal in the Spring but mortality begins to rise in the late Fall, and increases till May.*

*That the mortality to persons living, is greatest in our larger cities, and least in scattered population.*

*That these statistics support conclusions based on other evidence that the disease is spread largely by personal contact and infected clothing, chiefly by the last.*

*That schools are largely instrumental in spreading scarlatina as above.*

*That the isolation of the sick and of infected persons, with thorough disinfection of persons and things, are our most reliable measures to control the disease.*

The additional facts of this disease needful to be known for its prevention or restriction are:

*First—That its special infection is developed in the eruption in the skin, and given off thence to persons and clothing, and to bedding and other things in occupied rooms, and that it continues to be given off constantly till the skin is entirely well and all scurf or scurfiness has disappeared.*

*Second—That the slightest attack of the disease in one child may provoke a severe attack in another exposed to it, and that when it is epidemic a large proportion of the cases are often of so slight a type as not to be recognized at first, or, often, till the infection has been given to others.*

*Third—The period of “incubation” (time from taking the infection till the first symptoms appear) is rarely longer than seven days (one week), sometimes but a few hours.*

*Fourth—The patient is infectious, and so dangerous to others, for at least forty days and as a rule for seven or eight weeks, i. e., till the skin is entirely well and free of scurf, particularly on the palms of the hands and soles of the feet.*

*Fifth—The infection preserves its virulence in clothing and bedding hung up in closets or packed in trunks, clothing of the patient or his attendant or others exposed to him. So stored, the infection clings to such things, sometimes for months, ready, when the article is shaken in the air, or worn, to float off and infect the nearest child.*

*Sixth—Boiling water will destroy this infection in clothing or bedding, and a strong solution of quicklime will do the same for floors and walls if freely applied. On the person of the sick a simple ointment (one part mutton tallow and two parts fresh lard melted separately and mixed thoroughly till cold) is the best and easiest means of limiting the spread of the infection. Used all over the body it does two things—relieves the fever and itching of the rash, and confines the loose particles of skin containing virus to its surface or to the body clothing or the sheets of the bed, thus preventing its escape into the air.*

The above brief of needful facts is italicised to impress their importance upon Boards of Health and the mothers of families. They are the foundation upon which rest the measures we are to take to prevent or control scarlatina. It is evident from the above that the measures best adapted to the safety of the infected family and the community are isolation of the sick, with the nurse, from all association with the family or other persons, in the most secluded room available and outside the family if possible. (Where isolation hospitals do not exist this is very difficult). The room should contain no more furniture, carpets, rugs or window hangings than are required

for the use and comfort of the sick. All clothing, bedding and other needful things should be kept scrupulously clean. (Never use feather beds or comforters, but hair or straw mattress and blankets). The nurse should have two calico wrappers, covering the clothing from neck to wrists and feet, for alternate use. The ventilation, warming and lighting of the sick room should be independent of the rest of the house. (Currents of air from it would be the means of distributing the infection). The patient should be anointed from head to foot daily with some simple ointment (*see above*) and the clothing, both of patient and nurse, sheets and pillow cases, towels, handkerchiefs and the like, should immediately after removal, be plunged into hot water in a covered boiler and boiled for twenty minutes, when the virus they may have contained will be killed and all danger from that source removed. Dishes used in the sick room should be treated to boiling soap suds as soon as used, and food from the sick room burned.

*The well children* of the infected family are best cared for in other families where there are no children, and isolated there, for at least a week, before being permitted to go to school or on the street. Any who get sick are immediately returned to the home—for the time being a hospital.

After the recovery, or death, of the sick from scarlatina, if the above precautions have been faithfully taken during the entire sickness, the disinfection necessary will be that of the room, bedding and furniture, and of the clothing last worn by patient and nurse. All things that can be boiled should be soaked in a vessel of hot water *in the room* and then boiled as above directed. Before cleaning the room saturate the air with steam from hot water, then wash all furniture with scalding soap suds to which has been added "washing soda" freely; then put the furniture out of doors to dry. (Upholstered furniture, feather beds and pillows are difficult of disinfection and must be treated as advised by the health officer in each case). The floor, walls and ceiling of the room should be treated to *hot fresh lime water*\* with a whitewash brush. If there is paper on the wall this method will disinfect and make its removal easy. (All paper scraps and dust should be burned). These things done, open the windows, keep up the fire and dry the room. Ventilate in this way for two or three days, if possible, then scrub and clean the floor and oil or paint it, repeating the whitewashing of the walls and ceiling.

*Disposal of the Dead of Scarlatina.*—Immediately after death the body should be wrapped in a sheet saturated with strong lime water and put into a tight coffin. If the weather permits it should be cooled to freezing as soon as possible. When coffined it should be removed directly to the grave with no other assistance that is required for decent and private burial. This is necessary to avoid infection from the body of the dead.

*The Relation of Schools and Public Gatherings in the Spread of Scarlatina.*—This disease caused nearly seven per cent. of the total mortality by infectious diseases in the schools of the State during the past four years, and 33% of its total mortality at all ages, was at the school-going age.

C. N. H.

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\* LIME WATER is the clear solution of quick-lime. Take best quick-lime in lumps put in a pail, pour on one-third as much of water, cover close and shake till it is a fine powder or creamy fluid; one part of this to three of water will make a saturated solution. Add water in that proportion to the mixture, stir well and then pour on half a tea cup of kerosene, which will protect it from the air and preserve its strength. Use the solution as needed, and the solid matter, mixed with more water, can be made into whitewash or thrown into the sewer or out-house.

# PUBLIC HEALTH IN MINNESOTA.

CHARLES N. HEWITT, M. D., Editor.

OFFICIAL PUBLICATION OF THE STATE BOARD OF HEALTH  
AND VITAL STATISTICS,

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PUBLIC HEALTH IN MINNESOTA BEGINS ITS EIGHTH VOLUME with the current number. As the pioneer of regular monthly publications, under the auspices of State Boards of Health, it ventured in March, 1885, on an untried field all the more difficult in that the working of our State Health Service is peculiar and more detailed and mutually co-ordinated than any other. A glance at this number will explain this fact better than an elaborate dissertation. The table of contents shows the subdivision of our work, its amount and condensation of a great and varied mass of reports, which go into the composition of each number, making it a partial summary of the regular work of the State Sanitary Service for the preceding month.

**N**OTIFICATION OF THE ARRIVAL at the coast, of immigrants who have recently had, or been exposed to, infectious diseases, and who are coming to Minnesota, became a necessity just as soon as our State system of such notification was well enough established to be supplemented by information from abroad. Something like four years ago the Secretary attempted to interest other State Boards in the plan but few have the necessary sanitary organization and were disinclined to assume additional labor without the machinery to make it effective. We could not use this plea as our organization includes every township, village, and city in the State.

Notification of infectious disease by physicians, householders, and all citizens, to the Local Boards and by them to the Secretary of the State Board, was made obligatory by law in 1883, and had become so much the rule that in 1891 the Secretary asked the port physician of New York and the chief of the Marine Hospital Service what help either could give us in this direction. No reply from the port physician, and that from the Marine Hospital Service was to the effect that the Secretary's letter had been referred to Treasury Department. Change was impending in the Marine Hospital Service and a new bureau, that of Immigration, began with very indefinite duties as to infectious diseases. This the Secretary discovered while in Canada, last fall. The report asked for from the Immigration Service began June 24, 1892, and is now made regularly, and on December 28, 1891, the Superintendent of Immigration, in reply to an inquiry, stated that inspection was made of all immigrants, at all ports, and that instructions would be issued to make the same report as from New York. The plan has been in operation for nearly one year with the following result:

Reports from U. S. Immigrant Station in N. Y. harbor to March 29, 1892....	29
Immigrants who had, or had been exposed to, infectious diseases.....	385
Measles .....	327
Small pox.....	15
Diphtheria .....	3
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In 1891 the reports were 18, concerning 175 immigrants. In 1892 there were (in three months) 11 reports, concerning 210 immigrants.

The reports come by "fast mail" and are distributed immediately to the Boards of Health who meet the immigrant and take such steps as are needful. With the Secretary's notice goes an addressed postal card containing a form to be filled and returned one week after receipt. So far but one party has been reported as having arrived before the notice, and several outbreaks of infectious disease have been prevented by the prompt isolation of the immigrant who developed the affection after leaving New York.

There is every reason to think that Dr. Montezambert, the efficient Dominion Quarantine Officer at Grosse Isle, in the St. Lawrence, will be able to give us the same information from there when the immigrant travel through Canada begins in the spring.

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**VACCINATION.** That 70 per cent of all the children in Minnesota are unvaccinated is a startling fact which ought to arouse the most easy-going Health Officer, Chairman, or head of a family, to demand the cause and the remedy. The popular and professional faith in Jenner's discovery (*the first, and still the greatest, step in real preventive medicine*) is as firm as ever but doubt as to the purity and efficiency of the commercial virus has become a serious obstacle to the practice, greatly increased by the fact that some of it has proved not only unreliable but dangerous.

To meet this objection the Secretary was authorized by the State Board of Health, two years ago, to visit the leading centres of Vaccine culture in the world, to study methods and results, to select the virus which was found to be best, to cultivate it here, and when satisfied that he had a pure and typical vaccine to begin its regular production and use. The vaccine was found, cultivated, and is now being used and regularly produced. It has been carefully tested in over 2,000 cases, in persons of all ages, under the worst, as the best, conditions, and has won an established rank as pure, and of uniform quality.

The only real objection to vaccination being now removed, the work of restoring the practice to its proper place as our sheet-anchor against small-pox rests with physicians and Health Officers.

There are various ways of attempting this: One should (for example) use it upon himself and his family, and then carry it into the families of his clients and so on, but that is not what is asked for here. The greatest danger from small pox comes with immigrants, and with the "tramp" and other wandering class of laborers, particularly those who go to the lumber camps in winter, and to the farm in spring and harvest time, and especially during the coming season.

These men centre in the cities and villages waiting for hire, boarding in cheap tenement houses and exposing the laboring population to the greatest risk. *It is the poorer population who need the protection of vaccination most, and for whom it is economy to provide at very slight cost against a disease of which a single case costs a village or city more money than the vaccination of all unprotected children would do.* To provide for this class to whom the usual fee is a serious obstacle, the following plan is proposed for trial in places where the Board of Health will undertake the duty and be responsible for its proper doing.

After duly announcing, in a local paper, that the Health Officer will vaccinate (say) ten children every Saturday, at a specified time and place, with calf-lymph (from the Minnesota Vaccine Station), on no other condition than that the party return the day week to have a record of the result, and to get a certificate of the result, the Secretary will furnish the vaccine, and blank certificate, with a proper form on addressed and prepaid postal card for report of results to this office. The Health Commissioner of St. Paul has begun a careful trial of this plan with encouraging success.

The object in view is to increase the number of vaccinated children as rapidly as possible. Other plans will occur to every one and the co-operation of all who see the importance of this movement, is earnestly asked.

#### *SPRING WORK FOR HEALTH IN AND ABOUT THE HOME, ON THE FARM, IN THE VILLAGE AND CITY.*

SPRING is, by common consent, the season for house cleaning, and for "clearing up" in back-yards, front-yards, and streets; it is also the time for beginning the campaign against ill-health, sickness, and premature death, which will "have their best innings" from spring till frost.

*Cholera infantum*—a specific disease of the bowels in children—will begin its attacks with energy, in June, attain an enormous prevalence in July, and August, and a very rapid fall in September. The cause of this disease is closely related to filth of soil, foul air and water, in which, with the high temperature of summer, it finds a congenial hot-bed for a prolific and malignant growth. Children are by far the greatest sufferers and the dreadful fact that this poison finds them in their homes, makes the discovery of its mode of attack and destruction, a matter of vital importance to every mother, particularly.

44.9% of all deaths in Minnesota in the average of four years are of children under five years of age, and 31.6% are children under one year of age. What better evidence that the causes of death find them in their homes?

*The hot season is the one for rapid growth, maturity, and decay in the vegetable kingdom, to which most of the specific causes of diseases, at present known, belong.* Decay is at this season, still more rapid, offensive and dangerous. In the natural order of things decay is the natural helper of the growth of all forms of vegetable life on the condition that the dead thing is properly buried or burned, a condition difficult to secure in houses and centres of population, just in proportion as they are crowded, and the simple sanitary precautions, to be mentioned, are neglected.

The sanitary duties, in and about the home, from now to winter may be

summed up, from our present standpoint, to be very largely, the supply of those conditions whereby dead organic matter may be excluded from the air, breathed in, water drank in, and the house occupied by, every home of our population.

But how? is the natural question. As the mother is the proper *Health Officer of the home* what is to follow will be addressed to her, but with the distinct understanding that it concerns the father of the family as well, and that it applies as much to the isolated farm house as to the houses of villages and cities, for the problem is, *How to prevent the occurrence of ill health, sickness and premature death in the family.*

In beginning anything it is best to know first what needs to be done, and in this case the first thing is a careful inspection of the house, and everything in it from top to bottom, with all its belongings, out-buildings, and lot, to find every cause which may foul the air or water supply, or be a breeding place for the germs of disease, or a lodging for preventible nuisance.

*Begin with the cellar which, in winter and cool weather, is, as a rule, the lungs of the house.* It should be light and dry, and all summer long, have a free through and through ventilation. See that no decaying vegetable or animal matters is allowed there. Keep potatoes and other vegetables in boxes or barrels, small enough to be moved readily. Have no fixtures there but have closets, milk-safes and the like, readily movable and have them stand away from the walls. It *pays* to have a *cement floor*. If well made it can be thoroughly washed; it helps to keep out moisture, ground air and vermin, and can be cleaned as readily as stone, and better than wood. Stone or hard brick in cement, will do. Soft brick are bad; and wood, on the soil, very bad—the bare soil is better than that. *Cellar walls* should be coated with *fresh and caustic* milk of lime (true whitewash), *ceilings* to be treated in the same way if practicable, and always kept free from cobwebs and dirt. *a damp and musty odor* should never be tolerated in the cellar air. Keep it sweet and pure for the very simple but important reason, that it *determines very largely the character of the air of the house.*

*The house itself.* All floors should be well jointed, tight, smooth, and best of all, saturated with boiled linseed oil, or painted; but always by one or the other, but best by the oil, to prevent saturation by offensive matters, which must happen to a floor not so protected. A well made floor, smooth and well oiled, is so slightly, and easily cleaned, and kept clean, that carpets, except as movable rugs, are unnecessary. *The carpet*, as commonly used, cut to the size of the floor and tacked down for months at a time, always retains filth in and under itself, which the most careful sweeping will not remove. The *rug*, home-made, of carpet, is cheaper, cleaner, healthier, easily aired and dusted, and, fortunately, is now fashionable.

*The walls of rooms* should be lime-washed in simple colors, or painted.

*Wall-paper and kalsomine* are retainers of offensive matter; the cheap glue of the one, and the paste used to put on the other, are very liable to decay. All housekeepers know what a job it is to remove them, which must be done before another application. Arsenic is common in many wall papers, and has caused sickness in such combination; therefore, for health, use lime-wash or paint, on room walls. If the last, it should be thin, and a rapid dryer.

*As to ceilings*, they should not be painted or papered. Better lime-wash them. Part of the ventilation of rooms is (if permitted) through the ceiling into the garret, or the space between joists and thence to the garret.

*Closets and clothes presses* readily, and usually, become dirty, musty and

offensive. The musty odor here and elsewhere in inhabited places, is caused by the decay of organic matter. It is due to a vegetable growth, microscopic in size, and for that reason all the more readily floated in the air and breathed. Destroy it by cleanliness, dryness, ventilation and light.

*Winter clothing* should be well shaken and thoroughly aired out of doors, before packing away. Old boots, shoes, and the like, should go to the repair shop, to the compost heap, or be buried near the roots of vines or trees.

*Bed rooms and bedding.* Sleeping rooms are best off the ground floor. For mattresses, hair leads, of course; next may be put fresh and bright oat straw. For cover, nothing equals the *all wool* blanket, no matter how coarse its texture. The "comforter,"—*i. e.*, cotton-batting as a filling between two layers of cotton cloth—is, as usually made, a very poor substitute, a retainer of foul odors, and in case of infectious disease, dangerous. It is difficult to wash, and in too many instances is permitted to go unwashed. A better plan for a comforter is to replace the cotton-batting with washed and carded wool. Thin, light, tidy, and warm; it is almost the equal of the eider-down quilt. For summer use, light, *all-wool* blankets, with a neat Marseilles or calico spread are best. *Always use sheets* on the bed, as you wear underclothing on the body.

*Beds* should be shaken up and exposed to the open air for an hour in the forenoon; windows and blinds open, too, for a free ventilation. Bed rooms, for summer use, should be uncarpeted and contain no more furniture than is useful. *Cleanliness, ventilation, and sunlight* are even more important here than in other rooms. Iron beds and wire mattresses are nearly as cheap, and much healthier than wood.

*The garret* should be treated as a closet, through which much of the vitiated air of the house finds its way to the outside; therefore, be sure that it has windows and is well lighted. Leave its windows wide open the season through. Put in bars, if you please; but its free ventilation makes the house cooler in summer and its air purer in winter.

*Cisterns and wells* should never be placed inside the foundation walls of houses. If there, shut off moisture and odor, by covering with stone and cement and putting the manhole outside the walls.

*Cisterns* are best made egg-shape, the small end up, cemented inside and out, if of brick or stone. If dug out in solid clay, a strong wall of cement as a lining is enough. The egg-shape is not only the strongest, but it collects sediment in a small area of the bottom, and permits room only for manhole and pipes at the top, thus excluding vermin and filth. *Filtration of rain water* is better done before it enters the cistern, if practicable. The difficulty with a filter inside, is its cleaning. It may be of brick, filled with charcoal broken up small and free from dust, or better of straw, sand and gravel, but not under water. It should be well above the bottom, and easily removable for cleaning. *A filter is worse than useless if not frequently cleaned.* The delivery pipe should go within a foot of the bottom and turn up so that the incoming water may not stir up the sediment. Cisterns should be cleaned after the first spring rain (which washes the roof) and after the fall of the leaves in autumn.

*Wells and well water.* A "surface water" well is always liable to be soiled by the surface washings from house slops, manure, and the privy vault. The same danger threatens any well from which surface water is not shut out by cemented walls, or better, by sealing the pipe in clay or stone, and bringing it up well above the surface of the ground. Artesian, or drilled wells, treated in this way, as a rule (in Minnesota), afford pure and good drinking water.

*Sources of impurity to air and water outside the house* are, in order of importance, the *privy vault, house slops, manure piles, and garbage*. The first should be cleaned and its contents taken to cultivated land; then fill up the hole with clean earth, put an earth closet in its place and determine that never again will you permit that nuisance on your property. (Estimates and drawings of improved earth closets for in, and out-door use, will be furnished on application to the Secretary at Red Wing.)

*The manure pile* should always be placed where it will drain away from the well. If that cannot be, put it on a bed of well tamped clay, and under cover. In any case it should be removed to the land as frequently as possible.

*Scraps from the kitchen*, vegetable or animal, not fed to animals, should be regularly burned in the kitchen stove, or buried in the garden.

*House slops, soap suds, etc.*, in the absence of public sewers, should be drained off through a tight pipe into the garden and distributed through loose drains of tile or stone, 20 inches under the surface. The entrance to this sewer should be *outside* the foundation of the house and covered with an iron or other grating. This pipe should have an additional cover, of manure, in winter to prevent freezing.

*Barns, cow stables*, and other places occupied by animals, should be kept clean. *Dry garden earth*, used freely on the floor of the stalls, not only destroys odors, but saves the ammonia and makes the richest and most valuable of manures for the garden.

Here is our formula for lime water and lime-wash—always keep a large crock of it ready for use, and make free use of it on cellar walls and house ceilings, and in and about all out-houses and barns. It is of no use unless *fresh*, either for whitewash in or outside the house. The kerosene keeps it fresh and caustic—by excluding the air—for a long time.

*Lime-water* is the clear solution of *quick-lime*. Take best quick-lime in lumps, put in a pail, pour on one-third as much of water, cover closely and slack till it is a fine powder or creamy fluid; one part of this to three of water will make a saturated solution. Add water in that proportion to the mixture, stir well and then pour on half teacup of kerosene, which will protect it from the air and preserve its strength. Use the clear solution as needed, and the solid matter can be made into whitewash or thrown into the sewer or out-house.

*Streets and alleys*. Their sanitary care is the legal duty of Local Boards of Health, and they must not be used for the deposit of litter, manure, slops or other offensive matters. If those near the home are so used, complain to the Board of Health, who will give the matter prompt attention.

*Trees and shrubbery*, if not so near and dense as to make their shade damp, are of advantage. They should be trimmed high enough to permit a free circulation of air over the soil, which they help to drain and aerate.

*Fragrant flowers and shrubs*. When possible always have a garden of such, as well as a vegetable garden. Encourage the children to help in their care. Many a mother and daughter have found health and color in this pleasant labor, and very many more need just this variety to the monotony and confinement of household duty. *The summing up of the whole matter, therefore, is abundant pure air, fresh water and bright sunlight, within as without, the house, the essential foundation of healthy personal and family life.*

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#### A WORD TO THE CHAIRMEN OF TOWNSHIP BOARDS OF HEALTH.

BY THE SECRETARY OF THE STATE BOARD.

YOU represent the sanitary interests of more than 700,000 of the population of the State, living in 1,331 townships, and your Boards include over 5,000 members.

Your official duties as executive, and acting Health Officers are very similar to my own. We are the working representatives of our respective Boards in enforcing the sanitary laws of the State, and by our position we are bound to teach others, both by example and precept, the duty and usefulness of preserving health and preventing disease.

You have many advantages over me; you are directly elected by the peo-

ple whom you serve; your district is but six miles square, with a scattered population, all of whom you personally know. I mean the heads of families, any one or more of whom you can reach, by direct personal appeal as I cannot do.

Over 600 of your number join us for the first time this spring, the rest have served with us for a year or more. In fact the March election actually puts in about 1,000 new chairmen and clerks, every one of whom has to learn his new duties, largely through correspondence with me and from PUBLIC HEALTH and other sanitary publications of the State Board. You will not wonder, then, that I find it no easy task to keep the machinery of our State Sanitary Service up to its best the year round, or that I appeal to you to help me, and yourselves, by prompt reports, and constant look out for and control of infectious diseases of men and domestic animals. On the eighth of every March a class, larger than a full regiment, have to be posted in their new duties, and are hardly taught before some of them are replaced by others. This training has been going on for ten years, so that there are in every township men who have learned the usefulness of our work by a year's fellow service, and whom I have no doubt you find, as I do, willing to help when needed, and some of them by continuous service on the Boards.

You will be glad to read the following evidence of lively work in notification. Notice blanks, for reporting the township elections, were mailed March 1, from our office, to 1,331 townships. The election was on March 8, and on April 1, 23 days after, 1,137 reports were on file in this office —more than 80% of the total. This is due to the promptness of your township clerks.

I find that I have written 149 letters to chairmen since January 1, 1892, mostly in answer to questions relating to our common work. Judging from the correspondence with you for the past years, and particularly for the last, it appears that there are some matters about which all have asked the same questions because they are matters with which all of us have to deal. If you please, let me take them up in this way, giving you a printed memorandum, easy of reference hereafter.

1. First and most important is the *May Sanitary Inspection*, the object of which is to inform you thoroughly of just where sanitary work is needed this spring. As many of the Board should go as possible and your previous knowledge of where there has been serious disease of man or beast, where the land is low, water bad, and occupants careless and slovenly in cleaning up about privies, barns, and other collections of filth, will suggest the route to take. Look out for springs, lakes or streams of water, and permit nothing to injure them as sources of water for men or animals. Should you find cause to complain of adjoining towns, state all the facts and give a sketch of the locality if that will help to explain your statement, and forward to this office, sure that if there is just cause for complaint the matter will receive prompt attention. It is a good idea to keep a memorandum of your findings and of the results of any orders you may find it necessary to give. Please send a copy of it to this office.

You have no idea till you use it, what a help such a survey will be in your sanitary work for the year. Don't fail to make it, and as thorough as possi-

ble and needful. See the circular as to making this inspection, and the one on "*Hygiene of the Home*," in this number, to be reprinted, for free distribution (page 4.).

2. The removal of "nuisances, sources of filth or causes of sickness," and the prevention, or control of infectious diseases of men or domestic animals. You will find full directions for this important work in the circulars of "laws" and on the various diseases of this class which have been sent to you.

3. To regulate the offensive trades and employments so that they may not be nuisances or causes of sickness (Chapter 222, laws of 1885). This includes slaughtering houses, hog pens, creameries and the like, whose business results in offensive products if not conducted properly, and not unlikely to the fouling creeks, ponds or rivers with their refuse.

This is a brief summary of your duties as Health Officers. The details are fully worked out in PUBLIC HEALTH every month, and in the circulars and other publications issued from this office.

Make a rule, after failing to find an answer to any sanitary question which comes up in your work, in these papers, to write directly to me. Put your question as clearly as possible, giving names, dates and all other facts to help. A reply will come at the earliest moment. If time is important, use the telegraph, *as briefly as possible*, and send at the same time a "quick delivery" letter, describing the matter as fully as you wish. Don't forget, let me repeat, to name town, section, name of person, date of attack, others exposed, name and address of attending physician, and any other detail which will help me to advise you.

*In the beginning of an infectious disease*, or where you have good reason to suspect one, the safest thing to do is to isolate the suspected family till you can get a physician's opinion, or, if it be among animals, till a competent veterinary surgeon can be obtained. No harm is done by 24 hours' isolation, and any good citizen would prefer it to the danger of giving infectious diseases to others.

*Always serve copies of the "notification of infectious disease" blank on every physician, and midwife practicing in your township*, or if you will send me a list giving their names and postoffice address, I will send the blanks for you. Their co-operation is a very important matter and the law makes it obligatory. You will find that most physicians are very glad to help by sending an early notice. It is more and more their custom to notify me.

*In the matter of legal penalties*—There is a very important side to this subject, which we must consider, and that is this: The law provides a penalty for violation of sanitary law, and yet, if you use tact and judgment, and put yourself as far as possible in his place, doing as you would be done by, you will rarely have occasion to enforce the law by insisting on penalties. There is one rule: When a party *deliberately* and *intentionally* violates the law after proper warning, do not hesitate but quietly, promptly, and firmly enforce it, by appeal to the justice court.

EMPLOYMENT OF VETERINARY SURGEONS by Local Boards of Health is for the purpose of learning whether the disease in a given case is infectious and to get such advice as he can give in its management. For this purpose the law permits the Board to "employ a veterinary surgeon or physician by them selected."

1. Have distinct understanding that the party employed is to examine the suspected animal or animals, and give an opinion, written in ink on the proper form (No. 2, Infectious Diseases of Animals blanks), with such other advice and assistance as may properly be required, to use all diligence by thorough inquiry (post-mortem, if needed) to get at the truth in the case, and make written report of his findings and opinion.

2. Have a distinct understanding as to fees, so that there may be no difficulty afterwards. In the village or city where the veterinary surgeon resides the fee should be that usually charged: In the country the rule, as established by custom, is to pay from five to ten dollars a day for the service with the necessary traveling and living expenses. This is a matter to be settled by the parties who have to pay the bill—*in this case the township*.

3. Some owners of sick animals have the idea that it is the duty of the township board to provide medical care and medicine for such animals as well as to find out what is the matter with them. This is, of course, not so. The only motive of the Board is to discover if the animal has infectious disease and so is dangerous to others, and to get advice as to the means of preventing the further spread of the infection. It is sometimes possible that the owner is willing to divide the expense of the veterinary surgeon. When this can be done, with justice to all, it is a legitimate economy for the Board, which has nothing to do with medical treatment of such cases.

#### *INFECTIOUS DISEASES OF MEN.*

##### NOTIFICATION OF INFECTIOUS DISEASES, FEBRUARY, 1892.

	FEBRUARY.	JANUARY.
Diphtheria .....	99 cases, 20 deaths.	172 cases, 56 deaths
Scarlatina .....	193 cases, 15 deaths.	254 cases, 19 deaths
In St. Paul and Minneapolis of above— .		
Diphtheria .....	40 cases, 10 deaths.	71 cases, 20 deaths
Scarlatina .....	149 cases, 10 deaths.	131 cases, 10 deaths

M EASLES makes a small record for February but if we may judge from our experience its highest prevalence will probably be in May. It must not be forgotten that it is very likely to leave unpleasant reminders of its visit for years and particularly on those children who are popularly described as "scrofulous." In the *Lancet* for January 30th, is a statement worth reading in this connection, particularly the last paragraph, as true here as there:

"Over 13,000 lives are annually sacrificed to measles in England and Wales, and not only so but whereas, in the last ten years prior to the passing of the Public Health Acts in 1875, with its provisions as to isolation, the mean rate of mortality from measles was 401 per 1,000,000, living it has risen during the decennium, 1881–90 to 440 per 1,000,000. This rate exceeds anything that can thus far be attributed to influenza, but while panic arises about that disease, the fatality from which is so notably among the well-to-do and aged, the terrible death roll from measles, which has its incidence especially with the infantile population among the lower classes, passes all but unheeded."

***INFECTIOUS DISEASES—THEIR WHEREABOUTS.***

**I**N MINNESOTA. (Our office register is a large map showing every township, borough, village, and city. Infectious diseases are recorded by colored pins as soon as reported, and this mark is not removed till the outbreak is disposed of.)

**Diphtheria** (Up to April 1st). During March invaded 48 localities in 30 counties. One locality in 16 counties; 2 in 11; 3 in 1; 4 in 2. The distribution is in families and rarely gets beyond the original family, but when it does it is usually into those who are of kin or intimate neighbors.

**Scarlatina**—24 localities invaded in 16 counties. There were 12 counties with but a single outbreak: 1 had 2, another 4, 2 others had 3. (For fuller details and the relative prevalence of infectious and other disease, see under the mortality tables, p. 15.)

**OTHER STATES AND PROVINCES:**—*Small Pox*—Ohio reports a single case, a citizen, with no known exposure (March 23d). Isolation and vaccination.

**PENNSYLVANIA**—March 21st, a case in Titusville, a child, two and one-half years old, an immigrant from S. S. "Diana," which arrived in N. Y. harbor on the 5th inst. Isolation, disinfection, and vaccination. March 30th, another case at Tower City; origin unknown; isolation and disinfection. April 1st, two more cases in Tower City and the first reported, dead.

**NEW YORK CITY**—*Typhus Fever*—No official reports received, but there are cases in Hospital still. It is very much to be regretted that the City Board has not mailed regularly to Boards of Health as full and correct reports, at least, as have been given to the daily papers of that city.

**PENNSYLVANIA**—Two cases in Philadelphia (March 15th), professional nurses who had returned from nursing six cases of typhus in a private family in Worcester, Mass.

**MASSACHUSETTS**—Six cases in Worcester on authority of the above report.

**MICHIGAN**—The daily papers contain reports of a case in Michigan, of which no official notification has been received.

The disease is also reported elsewhere but not officially.

All which, with the cases in their resident population, make just cause for regret that the City Board of Health did not ask to have the whole party of Russian Jews returned to the Quarantine Station, or moved them into other and safer quarters than the tenement houses they were permitted to occupy. Another time such should be the inexorable order, for safety of city as of the rest of the land.

***INFECTIOUS DISEASES OF DOMESTIC ANIMALS.***

**Glanders**—The following report for February shows marked decline in numbers:

Remaining on hand, Feb. 1.....	30	Killed during the month.....	7
Reported during the month.....	7	Released during the month .....	16

Remaining isolated March 1, 1892, 14.

Most of them "suspects" under observation.

This disease is steadily decreasing in Minnesota because the Local Boards are co-operating with the State Board and have been doing so for the last six years. It has been an expensive and troublesome job but worth all it cost.

To keep what we have gained, tireless vigilance is needed, because there is the constant disposition and attempt of owners of much stock, as livery men, contractors, and traveling dealers to trade suspected, or "doctored" animals with farmers. It is difficult to deal with it in unorganized districts.

INTER-STATE NOTIFICATION OF INFECTIOUS DISEASES OF ANIMALS, *Glanders* has, within the last week, served a new purpose in enabling us to establish (for the first time in this country), reciprocity in the notification of infectious diseases of animals between the States (Iowa veterinary authorities and this Board), which means that we shall be able hereafter to notify the fifty townships on the Iowa border, of this danger coming from Iowa, as we now do if coming from within our own State. The incident which led to this very desirable agreement was as follows: A man living in an Iowa town near the border was found by the deputy veterinary surgeon of the district to have one horse with glanders and some others exposed to it; the glandered animal was killed and the others quarantined. The owner, or one directly interested in the horses, asked the Secretary of this Board for a competent person to come and examine them. He was, of course, told to consult his own State officials. The next information was that the isolated animals had been taken out of quarantine and sent into Minnesota. The Local Board, into whose jurisdiction they were, was immediately notified, and the animals isolated in the care and at the expense of the owner, who may have to take them back, and not return with them except he bring a certificate of a recognized officer of Iowa that they are free from infectious disease. A few years ago it was a common thing to make Minnesota the "dumping-ground" for infected horses and mules, and the northern part of the State has suffered most. Most of this danger is now over, thanks to a good law, and Local, and State Boards of Health co-operating heartily to prevent it.

The assistance of the fifty townships on the Iowa border is particularly asked to help the new arrangement for mutual notification, and their duty is to notify the Secretary promptly of any such disease in their towns, so that we may put the Iowa authorities on their guard. These last have promised to reciprocate.

OBLIGATORY NOTIFICATION OF INFECTIOUS DISEASES OF DOMESTIC ANIMALS is a very important feature of the methods we use in Minnesota to prevent, check, or control them. Without it we should often miss the opportunity we now have to deal with first cases, and owners who are not at all anxious for assistance or discovery, have learned that the consequences are too serious to neglect a notice which shifts the responsibility from themselves to the Local Board.

The section is 8, of chapter 200, laws of 1885, and reads: "Whoever knows, or has reason to suspect the existence of any such disease [as those described in the first section] among the animals in his possession, or under his care, shall forthwith give notice thereof to the Local Board of Health of the town, village or city where such cattle are kept, and for failure to do so shall be punished by a fine of not less than fifty dollars nor exceeding five hundred dollars, or by imprisonment of not less than thirty days or more than one year."

**VITAL STATISTICS.**

A MEMORANDUM TO TOWNSHIP CLERKS IN THE MATTER OF VITAL STATISTICS.

BY THE SECRETARY OF THE STATE BOARD.

THE first complete compilation of the returns for 1891 is nearly done, and your attention is asked to some of the results.

To begin with, as you know, the returns are sent to me *monthly*, by you for the townships, and by Health Officers for the villages and cities. 1,425 clerks reported 19,318 births, and 7,144 deaths, a total of 26,462 individual records; 295 Health Officers reported 14,109 births, and 7,405 deaths, a total of 21,514 individual returns. To sum it up, during 1891, 1,720 reporters have sent to me 47,976 individual reports of persons born or dead during the year, an average of 150 reports of birth or death to be completed, corrected and recorded in this office for every working day of the year. That this is not a mere matter of copying the following data prove:

During the year, 1,163 letters were sent to clerks respecting these reports, and 1,264 files have been sent to them containing, on the average, 75 each, a total of 95,100 blanks.

At the end of the year every individual record has to be counted and entered on our books before I can make up the accounts on which your payments are made, and these accounts with all your original returns are made up into 76 packages and sent to as many clerks of court. For last year many clerks sent in supplementary returns after January 29, 1892 (1,107 births and 332 deaths) which caused a very large amount of extra work here, including a new set of returns to the clerks of court.

*To correct the returns of causes of deaths*, 750 requests have been sent to physicians during the year.

I would not bother with this statement of part of the work done on Vital Statistics in my office if some of the clerks had not written complaining of their labor without proper remuneration, and intimated that the easiest share of the work was mine. To the above facts let me add the other one, that of the annual appropriation of \$1.000 for this work here, every cent goes to pay two clerks, postage, printing, and like expenses, and none has ever been paid to me, nor was my salary increased when this large addition to my duties was made. It is to be hoped that this statement will suffice to set right any one who thinks the Secretary has, from this source, any other addition to his income than important and necessary facts, with some worry and more work.

But I am much more interested in enlisting your co-operation to make the Vital Statistics of 1892 the most complete since we began to improve them in 1887.

To begin with, there is no legitimate excuse for any householder to complain if he is required to report to you within ten days, upon blanks furnished by this office through you, all births and deaths in his family. Nor can any physician or midwife complain of the same relation, but the chief difficulty is that such a large proportion of births, and so many deaths occur without medical attendance, and that particularly as to still-births, and deaths soon after birth, there is so much unconcern and carelessness. To help you in enforcing the law, I enclose in this paper a blank upon which, if you will write the name and postoffice address of every physician whom you know to prac-

tice in your town; of every midwife who attends confinements; of anyone else who prescribes for the sick, and lastly the names, denomination and address of every clergyman who officiates there, I will do what I can to help you get the facts they can give of birth, death or infectious disease among your people. My experience has taught me that physicians and clergy are willing to help in these matters if courteously reminded that they can do so, and such an experiment as I propose will prove no experiment but a success. Please, therefore, fill and return the blanks as correctly and as soon as possible.

*Another important matter—if there have been no births or deaths during the month, send a postal card notice of the fact.*

I must have a report, either a copy of your record or if you have none a postal card statement of the fact sent in its place, before the fifth of the following month, and for the simple reason that I cannot complete my records till I have yours.

2. *Never put the returns of two or more years on the same blank* as each year's record must be kept by itself. If you have returns for more than one month of the same year to be sent at the same time, report them on the same blank, if you please, but all of the same month together, and the months in their order. *It is much better to use a blank for each month of back returns even if there is but one entry to report for each.*

3. Please remember that while attention to these little details adds nothing to your labor, neglect of them increases the work here many hours in the month.

4. Examine, on the first of each month, the registers of churches and cemeteries, or send a blank to the proper person with *prepaid addressed envelope* for its return. This will often save you trouble and increase your returns.

#### MINNESOTA VACCINE STATION

VACCINATION.—The vaccine is on heavily charged ivory points, (which are carefully sterilized before use); it is dried at a low temperature rapidly, and immediately wrapped up for the most perfect preservation, and marked with its source, and date of collection. It may be had in packages of five or ten points as desired. Five points will be sent for trial to any physician who will use and report results. The price, always in advance, is \$1.00 for ten points, but it will not be sent out unless the applicant agree to report its operation on the postal card accompanying every package, within one week after use, being particular to describe any irregular or noteworthy peculiarity observed in its work. This is to enable the producer to make immediate investigation with retained samples. No such report has been received in the two years of our experience but it may occur at any time that the process is in some way abnormal, and it is just such cases that we want reported as soon as discovered. In no other way can the high standard we have set up be maintained. Arrangement for the use of Health Officers: for gratuitous supply, or for quantities, can be learned by note to the Secretary at Red Wing.

How ought a VACCINE VESICLE TO LOOK? Reports of the use of our vaccine are very encouraging but there is a curious misunderstanding of what is a typical "vesicle." Jenner's description of one on a healthy baby is exactly true of the operation of our virus as it appears on the seventh day, "like the section of a pearl on the rose leaf," a little dimpled blister surrounded by a bright pink blush of the skin.

One of our oldest physicians called on the Secretary the other day and said "That virus was very feeble; it produced five little blisters around the pricks I

made as you advised, but not a sign of the real active operation I was taught to require for effective vaccination." He was shown Jenner's own colored copper-plate of the typical vesicle and instantly exclaimed, "That's just like it," and as frankly confessed that he never knew before what a *typical* vaccine vesicle was.

This appearance of the vesicle is so characteristic that it ought always to be obtained and can be got in no way so perfectly as by the single needle prick, as directed on the envelopes in which the virus is distributed. The object of five distinct vesicles is to increase the certainty of the protection (see the statistics of Mr. Marston, based on the observation of 5,000 cases during 20 years in London Small Pox Hospital) without increasing the discomfort of the patient.

#### MINNESOTA WEATHER SERVICE.—REPORT FOR FEBRUARY, '92.

FURNISHED BY MINNESOTA STATE WEATHER SERVICE, J. H. HARMON, DIRECTOR.

##### ATMOSPHERIC PRESSURE—IN INCHES.

Monthly mean for state, 30.18; Maximum observed, 30.67 at Duluth on the 26th, and St. Paul on the 16th; Minimum observed, 29.48 at Alma City on the 10th, and Albert Lea on the 7th; Range, 1.19.

##### TEMPERATURE—DEG. F.

Monthly mean for State, 16.5; Monthly mean for Northern section, 11.2; Monthly mean for Central section, 16.9; Monthly mean for Southern section, 21.4; Highest monthly mean, 24.2 at Red Wing; Lowest monthly mean, 3.8 at St. Vincent; Range for State, 84; Mean maximum for State, 23.9; Mean minimum for State, -23.1; Greatest local monthly range, 74 at Montevideo; Least local monthly range, 51 at Sheldon; Greatest daily range, 36 at St. Vincent on the 16th; Least daily range, 2 at Duluth on the 1st, and St. Paul on the 23d.

##### PRECIPITATION—IN INCHES.

Average for State, 1.13; Average for Northern section, 0.81; Average for Central section, 1.39; Average for Southern section, 1.34; Greatest amount, 2.60 at Farmington; Least amount, 0.44 at St. Vincent and Crookston.

##### WIND.

Prevailing direction, Northwest.

##### MISCELLANEOUS PHENOMENA.

*Auroras*:—At Red Wing, Kinbrae, Rolling Green, Morris and Caledonia on the 29th; at Granite Falls on the 2nd, 25th, 26th, 29th; at Montevideo on the 28th and 29th; at Sheldon on the 23rd and 29th; at Alma City on the 26th and 29th; at Fergus Falls on the 13th, and at Farmington on the 23d. *Solar Halos*:—At Granite Falls and Morris on the 14th; at Farmington on the 9th and 16th, and at Red Wing on the 9th. *Lunar Halos*:—At Granite Falls on the 13, and Red Wing on the 7th; *Mirage*:—At Kunbrae on the 9th, and Rolling Green on the 15.

##### FORECASTS.

According to the reports of displaymen, the Weather Bureau forecasts during the month, for Minnesota, were verified as follows: Weather, 83.9 per cent; Temperature, 84.0 per cent; Weather and temperature combined, 83.9 per cent.

##### REMARKS.

Both the temperature and precipitation were above the average for the month throughout the State.

NOTE:—The Northern section of the State includes all north of parallel 48-½; the Central, between 46-½ and 45; the Southern, all South of 45.

#### DISTRIBUTION AND MORTALITY OF THE MORE IMPORTANT DISEASES IN MINNESOTA in February, 1892, (from returns of 681 localities, received up to March 24, 1892.)

POPULATION, (CENSUS OF 1890.)

STATE .....	1,301,826
1. <i>First Class</i> (cities of over 100,000), St. Paul and Minneapolis.....	297,894
2. <i>Second Class</i> (cities of between 15,000 and 50,000), Duluth and Winona.....	51,323
3. <i>Third Class</i> (cities of between 5,000 and 15,000), Stillwater, St. Cloud, Mankato, Faribault, Red Wing, Brainerd and Rochester.....	51,622
4. <i>Fourth Class</i> (20 cities and villages of over 2,000 and less than 5,000 population) .....	60,319
5. <i>Fifth Class</i> (cities, villages and townships, population less than 2,000).....	840,668

The following tables are founded on 959 deaths from all causes in 681 localities in February; on the average for the same month for five years, on the census returns of 1890, and the distribution of the mortality into classes of population as townships, villages and cities.

## MORTALITY IN STATE.

	Total, February, 1892.	Localities Invaded.	No. Counties Invaded.	Average of 5 Years.	
				February No. of cases.	An'l Rate per 1,000 Living
From all causes..	959 (505-448)			962.	8.99
Tuberculosis.....	107 (43-64)	43	31	97.5 (av. 4 yrs.)	.91
Diphtheria.....	40 (19-21)	16	15	50.2	.46
Pneumonia.....	109 (59-50)	50	35	102.8	.96
Enteric Fever.....	19 (12-7)	14	13	25.6	.23
Scarlatina.....	24 (12-12)	12	11	19.2 (av. 4 yrs.)	.17
Croup.....	20 (12-8)	13	13	19.	.17
Bronchitis.....	26 (13-13)	11	10	33.2	.31
Whooping Cough..	10 (3-7)	9	7	13.5 (av. 2 yrs.)	.12
Measles.....	6 (2-4)	4	3	10.8	.1
Influenza.....	53 (15-38)	37	24	52.6 (av. 3 yrs.)	.49

## MORTALITY BY CLASSES. (See population above).

	1—First Class.	2—Second Class.	3—Third Class.	4—Fourth Class.
From all causes .....	342 (175 m., 167 f.)	65 (40 m., 25 f.)	42 (21 m., 21 f.)	59 (32 m., 27 f.)
Tuberculosis.....	45 (21 m., 24 f.)	7 (4 m., 3 f.)	6 (2 m., 4 f.)	5 (3 m., 2 f.)
Diphtheria.....	9 (3 m., 6 f.)	1 (0 m., 1 f.)	5 (3 m., 2 f.)	2 (0 m., 2 f.)
Pneumonia.....	49 (28 m., 28 f.)	4 (1 m., 3 f.)	2 (2 m., 0 f.)	10 (5 m., 5 f.)
Enteric Fever.....	5 (2 m., 3 f.)	1 (1 m., 0 f.)	2 (2 m., 0 f.)	none.
Scarlatina.....	10 (3 m., 7 f.)	2 (2 m., 0 f.)	2 (1 m., 1 f.)	2 (2 m., 0 f.)
Croup.....	9 (5 m., 4 f.)	5 (4 m., 1 f.)	none.	1 (1 m., 0 f.)
Bronchitis.....	14 (7 m., 7 f.)	4 (3 m., 1 f.)	none.	2 (1 m., 1 f.)
Whooping Cough..	none.	1 (0 m., 1 f.)	none.	none.
Measles.....	3 (1 m., 2 f.)	none.	none.	none.
Influe za.....	10 (3 m., 7 f.)	none.	1 (1 m., 0 f.)	6 (2 m., 4 f.)

## COMPARATIVE MORTALITY IN CITY AND COUNTRY, FEBRUARY, 1892.

	In 31 Cities and Villages, Pop. over 2,000 each. 461,158 inhabitants.		In Cities, Villages and Towns Pop. less than 2,000 each. 840,658 inhabitants.	
	Total Deaths	Deaths to 1,000 Living	Total Deaths	Deaths to 1,000 Living
Deaths from all causes.....	508 (258 m., 240 f.)	13.41	445 (237 m., 203 f.)	6.40
Tuberculosis.....	63 (29 m., 34 f.)	1.66	44 (14 m., 30 f.)	.63
Diphtheria.....	17 (6 m., 11 f.)	.44	23 (13 m., 10 f.)	.33
Pneumonia.....	65 (34 m., 31 f.)	1.71	44 (25 m., 19 f.)	.63
Enteric Fever.....	8 (5 m., 3 f.)	.21	11 (7 m., 4 f.)	.15
Scarlatina.....	16 (8 m., 8 f.)	.42	8 (4 m., 4 f.)	.11
Croup.....	15 (10 m., 5 f.)	.39	5 (2 m., 3 f.)	.07
Bronchitis.....	2 (11 m., 9 f.)	.52	6 (2 m., 4 f.)	.08
Whooping Cough.....	1 (0 m., 1 f.)	.02	9 (3 m., 6 f.)	.12
Measles.....	3 (1 m., 2 f.)	.07	3 (1 m., 2 f.)	.04
Influenza.....	17 (6 m., 11 f.)	.44	36 (9 m., 27 f.)	.52
State at large.....			8.91	dead to 1,000 living
Cities of First Class.....			14.15	" "
Cities of Second Class.....			*15.40	" "
Cities of Third Class.....			9.87	" "
Cities and villages of Fourth Class.....			11.91	" "
Cities, villages and townships of Fifth Class.....			6.40	" "

\* Nine out of 33 deaths were of persons over 70 years of age in Winona.

In both city and country a very large reduction since January.

The total mortality—Much less than in January (959-1232) though but little less than the average of this month for last five years. The death rate of the month, in terms of a year, is 8.91 to 1,000 living.

*Influenza* caused but half as many deaths as in January, had but half its prevalence, but is almost exactly the average of February for the last three years.

*Bronchitis, pneumonia and influenza* taken together, are much less than in January, but almost exactly the average of February.

*Diphtheria* mortality is less than in January, and 20 per cent less than the February average of 5 years, and we may expect a further and marked decline next month.

*Scarlatina* mortality is slowly increasing, and the distribution is much greater. While following the average of the month it causes some anxiety.

# PUBLIC HEALTH IN MINNESOTA.

CHARLES N. HEWITT, M. D., Editor.

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AND VITAL STATISTICS,

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THE MAY SANITARY INSPECTION. What is it? and What's the use of it? The law requires the Local Board of Health to make this inspection in May because that time coincides with the usual house cleaning period, when the thrifty house-wife ought to be in the mood to cooperate. It is the best time to get into shape for the summer; gardens are made; repairs are done; street and alley cleaning are expected, and popular and family attention are therefore most likely to be secured.

What is it? It is such a survey of the causes of nuisance, ill-health and sickness as will enable the Board of Health to know just where to use the public authority for their removal.

If any one think there is little occasion to make such inspection or call on the Board of Health for interference, let them think if they have made, or felt like making such complaint, say, within a year. Or better still take a walk in your neighbourhood of an evening, use your eyes, your nose, see the distance of this privy or cess pool from that well, trace that foul odor to its corner; see the condition of such places; the location and amount of manure, garbage and other nuisance in alleys and bye-streets; the average water-supply, private or public; the

disposal of slops; the condition of slaughter houses; stagnant water and similar dangers to health and then judge whether there is anything to complain of and anything for a Board of Health to do. Read the circular in Appendix.

There is in all these directions room for much improvement and if you will take the time to look the matter over as the father or mother of a family, whom you want to keep well, or as a good citizen anxious for the welfare and reputation of your place of residence, you will come behind your Local Board of Health with hearty and prompt support in two practical ways. 1st:—Make your own property what it ought to be in a sanitary sense. 2d:—Insist that others do the same thing. Apply to the Chairman or Health Officer of your locality for the circulars on "Health in the Home," "Earth Closets," and for those on infectious diseases, or write directly to Secretary S. B. of H., Red Wing.

#### THE MAY SANITARY INSPECTION—THE REASON WHY.

THE MAY SANITARY INSPECTION, required by law of all Local Boards of Health, is now due. In this number will be found a circular of suggestions as to its objects and methods to which the attention of chairmen and Health Officers is respectfully called. Beside the self-evident reasons for removing the causes, and breeding places of our customary diseases and to leave nothing undone for their prevention or diminution there are special motives for making the inspection this season, particularly in centres of population where the rising tide of immigration may bring infection.

The severe famine in Russia (40,000,000 affected, it is said,) has been followed by epidemics of relapsing fever and typhus, and the last has proved its staying power by sending its infection to New York in the clothing of Russian Jews, despite the long and interrupted journey. Not one of them were sick on passing quarantine, but despite the immediate action of the City Board of Health, on notice of the first case, the infection escaped and has appeared in several other States.

Cholera always threatens, and is so erratic that in time of brisk immigration it must never be forgotten.

Small pox escaped the New York quarantine to Pennsylvania last month, and because *unsuspected baggage may bring the infection from the remotest country abroad to the remotest township here*, it is a perpetual danger. Being the only disease against which we can surely be protected—by vaccination—there is no excuse for not urging its use since we now have a vaccine of our own, pure and thoroughly reliable. It was cultivated to meet the present emergency and to provide a constant supply for the future. That there is need for urgency the present unprotected state of the younger population of the State is evidence.

*Typhus* has never invaded this State to the knowledge of the writer.

*Cholera* came in immigrants in 1866 and 1872, and affected scarcely any one else, but almost never a year without cases of small pox.

Give all the importance their due to imported diseases, (and like fires, the

only protection is to be always expecting and prepared for them,) they actually cut a small figure in our mortality compared with the diseases which are always with us. In the last five years the most important causes of sickness and death, in the order of their mortality, averaged as follows:

Tuberculosis (1854 deaths); diarrhoeal diseases of children, (1112 deaths); pneumonia (845 deaths); diphtheria (804 deaths); enteric fever (573 deaths); scarlatina (209 deaths).

*Tuberculosis* is an infectious disease whose cause is known, thrives in damp, dark and dirty places, is communicated in milk, probably in meat, and surely is breathed, dried, in the air.

*Diarrhoea of children* is now known to stand in almost direct relation to the temperature of the foul soil on which the victim lives, and where the specific cause very likely grows.

*Pneumonia* has long been suspected to be infectious and of late is closely associated with influenza.

*Diphtheria* is a specific disease whose cause is now known to exist and probably grow, in damp and old houses and to be very persistent in the best.

*Enteric fever*, long ago, won the title, "filth fever," because its cause is in the dejecta of its victims which are constantly permitted to infect the water of wells, streams, and ponds.

Of still more importance than active disease very often, is the number of persons *not bed-sick but disabled from active work by the infinite variety of ailments classed as "ill health," "out of sorts," "neuralgias," "ill-defined rheumatism," and the long list which stand so close to the house in which we live, our peculiar occupation, our habits, and the acts or neglect of our neighbors.* These are most easily and directly affected by the results of vigorous activity in sanitary inspection, and the work to which it points. They not only are largely preventible themselves, to a considerable extent, but they are powerful secondary causes of more active sickness, by preparing the way for its attack.

It is worth while to remember that there is not an inhabited house in city, village, or country above reproach in a sanitary sense, and that, further, our civilization is more and more artificial and our luxuries, even, are often dangers to health.

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VOLUNTARY SANITARY ASSOCIATIONS are needed to co-operate with the State Sanitary Service in every locality, but most of all in the cities, the Secretary addressed the St. Paul Academy of Science, on sixth of May, by invitation, and will meet a number of influential women on the thirteenth, with a view to some positive co-operative work for public health. The English women are ahead of ours in this direction, but on lines which are not entirely adapted to our use. May the St. Paul experiment be a success and be followed by others all over the State.

**D**R. GEORGE BUCHANAN, Medical Officer of the Local Government Board of England has resigned; the Queen has acknowledged his services to the Nation by knighting him; his brethren are now preparing a suitable testimonial of their appreciation, and he will doubtless receive a retiring pension. Contrary to the usual rule we may expect the richest fruits of his experience hereafter. Few know the fact that the work which has given him professional standing has, much of it, been done "out of office hours" or suspect the petty detail and "grind" of the official duty of such a position, which is not an administrative but an advisory one. He is the sanitary adviser of the Board *when they want and ask advice*, but the determination when, what, and where to do is the prerogative of the Board itself, of whom not one is a Health Officer or physician.

Probably the distinctive work of Dr. Buchanan's service and the one which has been of the greatest advantage in England was his persistent development of the Medical Inspectorship; this he can now help better than before by just and independent criticism, for there are many things in the Public Health Service of England which need adjustment to modern needs and no one is more competent to deal with them than he.

Those Health Officers, who have occasion to use the Disease Classification of the Royal College of Physicians, in compiling Vital Statistics, will unite in asking of Sir George Buchanan, as a member of the committee in charge of the matter for the College, to work for a revision of the classification to suit the knowledge of our time, and to better adapt it to the registration of the facts of death cause, particularly of the class of infectious diseases.

#### INFECTIOUS DISEASES OF MEN.

##### NOTIFICATION OF INFECTIOUS DISEASES, MARCH, 1892.

Diphtheria .....	141 cases,	35 deaths
Scarlatina .....	190 cases,	12 deaths
In St. Paul and Minneapolis of above—		
Diphtheria .....	48 cases,	17 deaths
Scarlatina .....	137 cases,	9 deaths

#### INFECTIOUS DISEASES—THEIR WHEREABOUTS.

**IN MINNESOTA.**—(Our office register is a large map showing every township, borough, village, and city. Infectious diseases are recorded by colored pins as soon as reported, and this mark is not removed till the outbreak is officially reported to have ceased—disposed of.)

**Diphtheria.**—(Up to May 1st) During April invaded 36 localities in 25 counties. One locality in 16 counties; 2 in 8; 3 in 1. Less than last month.

**Scarlatina.**—17 localities invaded in 13 counties. One locality in 8 counties; 2 in 5 counties. Less than last month.

**OTHER STATES AND PROVINCES:** *Small pox.*—PENNSYLVANIA reports 1 case at Pittsburgh. Isolation, vaccination and disinfection. (April 19.)

CALIFORNIA reports 1 case *varioloid* at Berkeley, Alameda county. A "handler of foreign goods" suspected origin—"muffled Chinaman with sores on face in R.R. train." Chinaman not found. (April 29.)

**NEW JERSEY.**—H. O. Newark reports *small pox* on the wane, 73 cases, 8 deaths have occurred. All infected material destroyed. No danger of serious outbreak. (April 13.)

IOWA reports 2 cases *small pox* at Des Moines, "female rag pickers." Supposed origin, infected rags. (April 16.)

MICHIGAN reports 1 case *varioloid* at Detroit, in child. Origin not known. Removed to hospital and house, etc., disinfected. Danger unknown; Health Officer not heard from. (April 25.)

ILLINOIS reports 1 case in family of child returned from Europe, in S. S. Ethiopia, from Glasgow, arrived at New York, April 18, and Chicago April

22. Case discovered May 3. Removed to pest house. Vaccination and disinfection.

<i>Reports from U. S. Immigrant Station in N. Y. harbor from March 29,</i>	<i>21</i>
to May 1, 1892 .....	21
Immigrants who had, or had been exposed to infectious diseases.....	708
Measies .....	616
Measles and diphtheria.....	27
Measles and chicken pox.....	9
Scarlet fever.....	56
<i>Reports from Boston harbor.....</i>	<i>1</i>
Number of immigrants.....	49
Scarlet fever .....	49

## DIPHThERIA—WHAT IS IT, ITS MORTALITY, ITS CAUSES, AND ITS PREVENTION IN MINNESOTA.

It was the fearful mortality of this disease in 1882 which helped more than any other one fact, to get the great charter of our sanitary rights (Chapter 132, Laws of 1883), on the statute book of the State. Under that law the present large and efficient organization of the State Public Health Service (The State Board of Health and over 1,600 Local Boards) has grown into a compact and efficient body.

No better proof of its executive ability could be asked than the evidence of the following statistics. They give the mortality from diphtheria since 1881 with the population of the census years:

Years .....	1882 (pop. '80, 780,773)	1883, 1884, 1885, 1886, 1887,
Deaths.....	1602	1374, 1211, 1138, .....
Years .....	1888, 1889, 1890 (pop. '90, 1,301,826)	1891. Av. of last 5 yrs.
Deaths.....	866, 889, 740	706. 804.

### *Seasonal prevalence, (average 4 years.)*

Spring.....	19.9%	Summer .....	18.2%
Fall.....	31.9%	Winter .....	29.5%
Month of maximum mortality, October.....			12.4%
Month of minimum mortality, July.....			4.9%
State.....		6.4 to 10,000 living	
Cities of over 100,000.....	8.3	"	
Cities of 15,000 to 30,000.....	2.9	"	
Cities of 5,000 to 15,000 .....	5.1	"	
Villages and townships under 5,000.....	6.0	"	

For the last 5 years the average yearly mortality from this cause in the State has been 5.6% of all deaths, or 6.2 to 10,000 living. In the cities of over 100,000 population, the last proportion was 7.6, and in cities between 15,000 and 30,000 it was 2.5. Croup must still be recognized as a distinct disease but to correct a false impression it is joined with diphtheria in the following statistics from the returns for 1891:

In the State, diphtheria and croup together caused 6.1 deaths to 10,000 living  
In two cities of over 100,000 population each, 7.1 " "

*Mortality in country and city.* In the average of four years the mortality was as follows: In cities of over 5,000 population, 35% of all deaths; in populations less than 5,000, 65%.

The mortality from diphtheria in 1891 was less than one-half that of 1882 though the population has doubled. This great and steady gain is the result of *obligatory notification*, and constantly improving efficiency in enforcing *isolation* and *disinfection* by Local Boards of Health. The mortality in 1891 was 4.9% of all deaths and the average of the last 5 years was 5.6 of all deaths. The victims are nearly all under 20 years of age and 80% under 10 years.

But an annual loss of 700 children from this cause alone is an intolerable record if it can be reduced. The story of the past effort in our State is full of encouragement and this new edition of the circular on the subject is intended

to show how it can be made still better. Everybody can help, who will read what is here told, carefully, and then put it into practice; take every opportunity to impress it upon others; and support the Boards of Health in enforcing the law.

Copies of this and other circulars of the State Board will be supplied to any one asking, by the chairmen and Health Officers of Local Boards, or by the Secretary of the State Board at Red Wing.

DIPHTHERIA is a very infectious disease, and has the horrible peculiarity that it may attack the same person twice. Its infection attaches itself to clothing, bedding and the like, which, if not exposed to direct sunlight or moisture, retain its virulence for months. It seems almost to grow in old and damp houses, and is, in every place, where it cannot be directly dealt with, exceedingly tenacious and persistent.

*The germ of the disease* is a microscopic, single celled plant having the form of a little rod whence its latin name, "bacillus diphtheriae." These little cells do not, so far as is now known, penetrate the vessels of the human body or get into the fluids, or tissues. Their favorite location is the mucous membranes of the mouth, throat, and air passages. There they lodge, multiply enormously, and rapidly, and during this growth the peculiar virus of the disease is produced. This virus is a subtile poison, resembling the venom of snakes in some of its effects; it is absorbed into the circulation with varying rapidity, not always in proportion to the amount of the peculiar exudation, or membrane which resembles a piece of wash leather, or an old-fashioned wafer, white, but with different shades of white. In the depths of this membrane the bacilli produce the poison. Like snake venom it may be swallowed, with impunity by animals and men and in large amount, under whose skin an exceedingly minute amount would be fatal.

But it is with the bacillus, the germ and producer of the virus that we have to do, and let us go on to study what are the conditions most favorable to its affecting a lodgement in the body. Most important of these, we are just beginning to know, is the health of the children exposed to the infection, and the freedom of their throats and air passages from wounds, or the effects of other throat ailments. A healthy child with a healthy throat is safer than one suffering from catarrh or recovering from scarlet fever or measles, but none are really safe in the presence of this most malignant of the infections of childhood.

*The choice of locations* is decidedly the mucous membrane of the mouth, throat, and air passages, as a rule the tonsils, or their immediate neighborhood, are the first to suffer.

*The effect of temperature on the growth* is noteworthy; that of the body is the most favorable, but it is in proof that it can grow at much lower temperature outside the body, and the common explanation that the known persistence outside the body is due to dryness, does not account for the fact that it lives and grows in moist, dark and damp places, at low temperatures—at least it does not always die there.

*Moisture is absolutely necessary for the growth of the bacillus of diphtheria, but dryness does not kill it, for it may remain dry on clothing, bedding, or any other thing out of exposure to direct sunlight for months, and then with favorable moisture, temperature, and soil, recover growth, infectiousness, and virulence.*

How does the disease begin, and what are the first symptoms? It begins by the planting of the little germ, very likely many of them. They get into the mouth or nose in the air, or in or on solid or fluid food—on anything which is admitted to the mouth (a five-year-old son of the writer swapping marbles, took from another boy an agate alley which, as a test for color he put into his mouth; that boy was convalescent from diphtheria. Mine had a nearly fatal attack.)

These bacilli do not enter the blood but lodge on the mucous membranes and begin to grow with greater or less rapidity, doing serious damage, some-

times, before they have induced the formation of the patch of half-organized false membrane, commonly thought to be characteristic.

*Croup*—Sometimes this patch begins in the wind-pipe, mechanically producing the obstruction to breathing, and the peculiar cough which we call "croup." This happens so often and is so frequently assumed to be some other affection than diphtheria, thereby opening the way for the unchecked virus to do its deadly work, that experience has taught us to treat all cases of croup as diphtheria, and that should be the rule of all Boards of Health.

*Do all who are exposed to the infection of diphtheria contract the disease?* No, for if they did few would escape it. The healthy mucous membrane, like all other healthy tissues of the healthy body, is endowed with a strong power of resistance to the attacks of the multitude of vegetable and animal parasites to which it is, sleeping or waking, constantly exposed, mostly coming in the air breathed and so lodged in the moist air passages. Poisons of this class are domesticated, and most common in and about inhabited places, which partly accounts for the number of children who suffer; not entirely, though.

*Age at death.* Infants under one year of age figure but 4.3% of all deaths from this cause in the average of four years (1887-90), in our State. While the other ages, under five, average about 10.0% gradually increasing from one to five.

Under five years of age the dead were 44.5%. It falls off rapidly thereafter; 5 to 10 years, 34.7%; 10 to 15 years, 13.1%; 15 to 20, 4.3%; 20 to 30, 2.1%; and 30 to 40, but .06%, but 19 out of a grand total of 3,315 in five years, or a yearly average of 5 of 829 deaths.

This is an important fact—the mortality from diphtheria is so small after the 15th year of age—that is liability to the disease decreases after the 5th year of age—and after the 18th year it is very small. In our experience the occurrence of such cases has been associated with concentrated and prolonged exposure to the infection with the depressing influence of anxiety, fatigue and sorrow. All these predisposing causes favor the infection and are proportionably diminished by cleanliness, and comfortable quarters for sick and nurse, good air and food, abundant light and cheerful conditions, as they are aided by close and untidy quarters, bad air, light and food, with worry and care. The tired mother or nurse is the one who suffers most and everything done to comfort and help her is a help to the patient and a hindrance to the infection.

*How soon after infection is the disease likely to occur (the period of incubation?)* Within a week, and probably four or five days is the rule.

*How to deal with diphtheria, either by prevention or restriction?* We assume that the essential cause is a microscopic plant which comes from the diseased surfaces of a victim; that it is carried in the air as a dried powder, on, or as, dust; attaches to clothing, bedding, furniture, the floors and walls of rooms occupied by the sick; on or in solid and fluid foods, particularly milk (one of the best culture fluids); upon pet animals, playthings and books, and finally is contracted at the funerals of the dead. This last has happened so often in this State that public funerals are positively forbidden, and private and speedy burial insisted on.

*How to prevent the disease.* *Outside the body* in clean, roomy, and well ventilated houses, and still better in the open air, the natural means of destruction are always at work, they are sun-light, oxygination, alternate dampness and dryness, with warmth, and the operation of microscopic animals and other plants, a mixture of vital and chemical activities which are always compelling healthful exchanges of life and death between particles of dead and living matter.

*In the body, and in the ordinary house,* and its contents these agencies, while at work, are not under natural conditions and so work slowly, or not at all, and we are therefore compelled to resort to artificial measures. These vary according as we have to deal with the infection in the presence of the person producing it, or after the last case in a family had been disposed of. This distinction is a very practical and important one.

*In a family living in a healthy house, where the sick can be entirely isolated from all association with the rest, except through the nurse, there is no occasion for the last to take the disease, and the method is easy and safe provided the measures here advised are strictly followed. From such a family the outdoor workers may go without danger to their business, but those whose work is indoors and likely to bring them into close and confined places with other people would do better to take other lodgings till the danger is past.*

*How to do when the affected family is a large one, occupying a small house,* is the most common problem we have to solve, and if such a family is of untidy habits, careless or shiftless, and do not employ a physician it is not easy to decide. Let us take a family of this kind, poor, tidy, and intelligent, the reply will be more hopeful if the first case is promptly dealt with. The first thing to attempt (and it has repeatedly been done, particularly in country districts), is to remove the apparently healthy children to another building, if one is available, or to another family, where there are no small children, till the danger is over. The infected house in this way becomes a hospital and the mother has leisure to attend to the sick while the other children are removed from further danger, and should one or more take sick he is immediately returned to the home.

*But suppose the well children cannot be moved in either way suggested, what is the next best thing to do? The infection of the disease escapes from the body almost exclusively in the discharges from the mouth and nose, so that if they be destroyed immediately on escape, the danger to others is reduced to a very small chance.* This should be done from the first symptom till three weeks after recovery. An attentive nurse can easily manage it by collecting all the discharges on cotton or linen rags and immediately burning them, or easier, put them directly into a dish of the lime water (described further on), and at regular times burn them. She must see that all soiled clothing, bedding, towels, handkerchiefs, washcloths or other articles used about the sick are, immediately after use, put into hot water and boiled, as this will kill the virus surely and such things may then go into the common wash with safety. Always wear a calico wrapper in the sick room, covering the dress entirely, when soiled put in boiling water immediately. Wear a linen or cotton cap to cover your hair, treating it as the wrapper, and always wash hands and face when about to leave the room. Keep every one else from the sick room, and if they must come let them wear a wrapper and cap as you do. It is only in this way that you can be sure you have done the best thing.

The well children should be kept as far from the sick as possible, and when the weather permits out of doors, in granary, hay-loft, or under other shelter for play.

*What the duty of a Local Board of Health to such a family?* Isolate them thoroughly from association with others, except as permitted by the Board, and let this include the house and lot so that the well children need not be confined to the house but may play outside. This can be done in the ordinary town lot and on the farm under the direction of the Board. The Board is to offer the family every assistance possible, see that they have means of communication with others, doing errands, sending for the doctor, in short all that can be permitted with safety to others. If a poor charge, everything needful is to be provided by the Board. (See See. 29, Chap. 132, Laws 1883.)

*But if the infected family is one of a number occupying a dwelling, with other families, what then?* The safest way would be to remove the family to another and isolated house (in default of a hospital or retreat), but much can be done in the ways above suggested.

*Care of the sick of diphtheria when too much for the mother, with the help of older children?* is one of the most pathetic questions asked of the Secretary by Chairmen of Township Boards. Our files are witnesses of the urgency of this call in remote country districts and among the poor, where more than one patient and worn out mother has followed the last of her children, by the same disease to the grave. It is a shame that with so many

trained nurses, sisters, deaconesses, and other single women able to serve, there is no supply for such a demand as this. Some of the lack is due to an exaggerated fear of the disease by women over 30 years old. Not one in a hundred, after that age, exposed to the infection, take it, nor one in a hundred, taking the disease, die of it.

The only real danger is the carrying infection to others, not to suffer from it themselves.

*Is the father or other bread-winner to be kept from his work because he has a child sick of diphtheria?* In the case of one dependent on daily labor for daily bread, if he must stay at home, it is real economy to allow him wages for public safety. If he can arrange to keep clear of exposure, to the satisfaction of the Board, he should be permitted to go to work, and the best way is to lodge and board elsewhere, visiting home under the same sanitary restrictions as the physician or clergyman. This ought to be insisted on in the case of a store, grocery, saloon and similar business; the proprietor and clerk must not expose others to infection; they must board and lodge outside the infected family if they are to attend to their work. Of the details each Local Board of Health must be the judges.

*When is the isolation to be removed from a family where there has been diphtheria?* Not until at least three weeks after the recovery of the last case in that family, and not then unless thorough disinfection has followed.

**How to Disinfect:**—*Begin with the patient* immediately the disease is recognized, using the means already described, constantly and thoroughly, so that when the case is terminated there will be little else to do than to deal with bedding, furniture, and room. Do not be persuaded to use little “smudges” of sulphur or any other odoriferous thing. When the air is foul ventilate by letting in fresh air, but do not make it worse by still another “smell.”

**1. Clothing, bedding.** Everything which will bear boiling water (it is well to use soap but nothing else, nor even that necessary), can be absolutely disinfected by its use, and fifteen minutes’ hard boiling is enough. This simplifies the matter very much—boiling water is a perfect disinfectant, none better except alternate superheated air and steam, which are not available at present even in cities. The contents of mattresses of straw, excelsior, moss, and the like, should be burned, the ticks, if worth it, can be safely dealt with by water; *feather beds* should be disinfected first by steam and sulphur, as above, then opened, the feathers scalded and dried in the open air, and tick washed. Cotton quilts are a sanitary abomination and after use in diphtheria are better burned, though they may be boiled *for at least an hour*, and be safe.

**2. Sulphurous fumigation.** Arrange bedding, carpets, etc., so that the steam and gas can reach them readily, close all openings of the room but the door, and fill the air with the vapor of water from a boiler on the stove, if there be one; if not then fill a wash tub in the middle of the room with water as hot as possible and close the door. As soon as the water has cooled dip out all but about two inches in depth; put in two or three bricks, and upon them put an old frying pan or kettle containing two pounds of sulphur for each 100 cubic foot of space, using more than one tub and kettle if the space is greater. Pour on the sulphur two ounces of alcohol, light it and go out, closing the door as tight as possible, and leave it closed for twelve hours, then open doors and windows, put the bedding and mattresses out doors to get sun and air, wash the floors and furniture with hot soap-suds, take off the paper from the walls and wash them in the same way. Whitewash the ceiling and if not to be painted, do the same for the walls. Do not use wall paper.

Leave all open to the sunlight and air till thoroughly dry; if the floor was painted, repeat it; if not, saturate it with boiled linseed oil, which is the best treatment for floors either for care, appearance, or health. After the most thorough disinfection prevent children sleeping in the room until it has been repeatedly cleaned and ventilated, and not for a month, anyway.

*The influence on schools, and other public gatherings of children upon the spread of diphtheria,* may be inferred from the number of deaths from this

cause at the school-going age, 50% of total, a very powerful argument for school teachers to co-operate with Boards of Health as required by law:

"No principal, superintendent or teacher of any school (public or private), shall permit any child having scarlet fever, diphtheria, small pox, or any dangerous, infectious or contagious disease, or any child living in any house in which any such disease exists, or has recently existed, to attend any public or private school until the Board of Health of the town, village, borough, or city, shall have given permission thereto; nor in any manner to be unnecessarily exposed, or to needlessly expose any other person to the taking, or to the infection of any contagious disease."—Sec. 26, Chap. 132, *Laws of 1882*.

(A circular to school teachers on "Health of Children in the Schools," can be had of the Local Boards, or of the Secretary S. B. of H., at Red Wing.)

*Disposal of the dead of diphtheria.* Immediately after death the body should be wrapped in a sheet saturated with strong lime water, put in a tight coffin, and taken to the grave with no other assistance than is required for reverent, decent, and private burial. This to avoid the known danger of infection in this way, of this disease.

Lime water seems likely to be credited generally with the value we have always attributed to it. If made in the way here described it will be found to serve a great variety of use where "live caustic lime" is wanted, as for all sanitary purposes. The addition of a little kerosene will preserve its strength without affecting its value, and remove the principal objection as its use hitherto, its unstable strength.

*Lime water* is the clear solution of quick-lime. Take best quick-lime in lumps, put in a pail, pour on one-third as much of water, cover closely and slack till it is a fine powder or creamy fluid; one part of this to three of water will make a saturated solution. Add water in that proportion to the mixture, stir well and then pour on half teacup of kerosene, which will protect it from the air and preserve its strength. Use the clear solution as needed, and the semi-solid matter can be made into whitewash or thrown into privy, cesspool, or garbage barrel.

#### INFECTIOUS DISEASES OF DOMESTIC ANIMALS.

##### Glanders—

Remaining on hand, March 1 .....	14	Killed during the month.....	2
Reported during the month.....	2	Released during the month .....	4
Remaining isolated April 1, 1892, 10.			

Most of them "suspects" under observation.

#### REPORTS OF CHAIRMEN AND HEALTH OFFICERS.

THE following is a fair sample of the work being done by our best chairmen of Township Boards, thinking and intelligent farmers, who are thoroughly alive to the advantage of prompt and vigorous control of infectious diseases:

TOWNSHIP OF GREEN LAKE, KANDIYOHI CO., MINN., May 4, 1892.—"Measles has broken out in the Village of Spicer, in our town, and there are now some 15 cases, of which some are now beginning to recover. At my request the School Board have closed the school. The disease made its first appearance—three weeks ago—in the family of D. W., one of his daughters taking sick, and as they had no doctor, the disease was not recognized. As soon as this girl had, apparently, recovered, she went to school, and about 10 days after measles appeared, simultaneously, in 8 different homes. We have now taken precautions to prevent the spread of the disease, and I hope, soon, to report it 'stamped out' in this vicinity."

G. V. LARSON, Chairman Local Board of Health."

BURIAL PERMITS—Local Boards of Health ought to establish a system of official record of burials in local cemeteries for sanitary purposes and as a part of the official record of deaths. No burial should be allowed without a permit based on the certificate of death required by the Vital Statistics law, nor any removal for burial elsewhere, nor bodies brought from without for burial in local cemetery without copy of certificate of death. The following

rules were adopted by the Local Board of Health of Crystal Village, Hennepin county, February 2, 1892:

*Resolved*, 1st. That no person dying within the bounds of said village, shall be buried in any cemetery of said village, or removed from said village, until a permit has been granted by the Board of Health of said village.

*Resolved*, 2d. That so person dying outside the bounds of said village, shall be buried in any cemetery of said village, until a permit has been granted by said Board of Health.

*Resolved*, 3d. That no burial permit shall be granted until a certificate, giving cause of death, has been given by a physician authorized to practice medicine by our State laws.

*Resolved*, 4th. That when there has been no physician in attendance, or the attending physician refuses to give certificate of death, it shall be the duty of the county coroner to so certify.

*Resolved*, 5th. That these resolutions shall be in force from the date of adoption.

The penalty provided by Chapter 132, Section 30, of our State Laws of 1883 is, that any person who shall wilfully violate any regulations, duly made and published by any Board of Health, shall be guilty of a misdemeanor, and upon conviction thereof shall be guilty of a misdemeanor, and upon conviction thereof shall be subject to a fine not to exceed one hundred (100) dollars, or imprisonment not to exceed thirty (30) days, or both fine and imprisonment.

C. A. DONALDSON, M. D., H. O., } Board  
F. P. STINCHFIELD, } of  
Thos. G. GEARTY, } Health.

### MINNESOTA VACCINE STATION

#### FOR PRODUCING AND DISTRIBUTING PURE CALF VACCINE.

Established in October, 1890, the constant endeavor is to produce a vaccine which answers to the most rigid tests of purity, and typical performance in use. For these reasons none will be issued gratuitously, or for cash, except on the condition that the recipient report, on blanks supplied for the purpose, the results on the day week after its use. It is only in this way that any failure can be immediately reported to the producer and investigated with retained samples which are always kept.

The station is now being removed to enlarged and very convenient quarters in Red Wing, where the work can be done at better advantage and with the least trouble.

Hearty commendation is coming in gratifying volume, of which that from representative men outside the State is very pronounced.

### MINNESOTA WEATHER SERVICE.—REPORT FOR MARCH, '92.

FURNISHED BY MINNESOTA STATE WEATHER SERVICE, J. H. HARMON, DIRECTOR.

ATMOSPHERIC PRESSURE—IN INCHES.—Monthly mean for State, 30.14; maximum observed 30.88, at St. Vincent, on the 13th; minimum observed, 29.15, at Duluth, on the 9th, range, 1.73

TEMPERATURE, DEG. F.—Monthly mean for State, 25.1; monthly mean for northern section, 22.0; monthly mean for central section, 23.4; monthly mean for southern section, 28.1; highest monthly mean, 30.1, at Red Wing; lowest monthly mean, 18.3, at St. Vincent; maximum observed, 60, at Montevideo, on the 11th, and Farmington, on the 8th; minimum observed, -29 at Pokegama Falls, on the 15th. Greatest local monthly range, 85, at Pokegama Falls; least local monthly range, 50, at Sheldon; greatest daily range, 39, at Moorhead, on the 11th; least daily range, 2, at St. Paul on the 4th, and Duluth on the 30th.

Precipitation—in inches.—Average for State, 1.24; average for northern section, 1.34; average for central section, 1.20; average for southern section, 1.20; greatest amount, 3.12, at Kinbrae; least amount, .50, at Mankato.

WIND.—Prevailing direction, northwest.

FORECASTS.—According to the reports of displaymen, the Weather Bureau forecasts during the month, for Minnesota, were verified as follows: Weather, 80.5 per cent; temperature, 78.8 per cent; weather and temperature combined, 79.8 per cent.

REMARKS.—The temperature and precipitation were slightly above the normal except in the southeastern part of the State, where there was a slight deficiency in both.

**D**ISTRIBUTION AND MORTALITY OF THE MORE IMPORTANT DISEASES IN MINNESOTA in March, 1892, (from returns of 809 localities, received up to April 24, 1892.)

POPULATION, (CENSUS OF 1890.)

STATE .....	.....	1,301,826
1. First Class (cities of over 100,000), St. Paul and Minneapolis.....	.....	297,894
2. Second Class (cities of between 15,000 and 50,000), Duluth and Winona.....	.....	51,323
3. Third Class (cities of between 5,000 and 15,000), Stillwater, St. Cloud, Mankato, Faribault, Red Wing, Brainerd and Rochester.....	.....	51,622
4. Fourth Class (20 cities and villages of over 2,000 and less than 5,000 population) .	.....	50,319
5. Fifth Class (cities, villages and townships, population less than 2,000).....	.....	840,668

The following tables are founded on 871 deaths from all causes in 809 localities in March on the average for the same month for five years, on the census returns of 1890, and the distribution of the mortality into classes of population as townships, villages and cities.

## MORTALITY IN STATE.

Total, March, 1892.	Localities Invaded.	No. Counties Invaded.	Average of 5 Years.	
			March No. of cases.	An'l Rate per 1,000 Living
From all causes.. 874 (470-404)			1029.	9.62
Tuberculosis..... 109 (57-52)	47	33	115.7 (av. 4 yrs.)	1.08
Diphtheria..... 45 (21-24)	18	18	48.4	.45
Pneumonia..... 85 (44-41)	33	22	103.	.96
Enteric Fever..... 28 (16-12)	16	14	24.2	.22
Scarlatina..... 21 (6-15)	12	9	15.8	.14
Croup..... 16 (7-9)	9	8	18.2	.17
Bronchitis..... 19 (11-8)	7	7	38.2	.35
Whooping Cough.. 9 (3-6)	6	6	9.2	.08
Measles..... 5 (3-2)	2	2	12.4	.11
Influenza..... 18 (9-9)	18	17	30. (av. 3 yrs.)	.28

## MORTALITY BY CLASSES. (See population above).

1—First Class.	2—Second Class.	3—Third Class	4—Fourth Class.
From all causes ... 385 (204 m., 177 f.)	45 (24 m., 21 f.)	41 (22 m., 19 f.)	47 (27 m., 20 f.)
Tuberculosis..... 60 (32 m., 28 f.)	4 (2 m., 2 f.)	5 (2 m., 3 f.)	5 (2 m., 3 f.)
Diphtheria..... 14 (7 m., 7 f.)	2 (1 m., 1 f.)	5 (3 m., 2 f.)	1 (0 m., 1 f.)
Pneumonia..... 48 (27 m., 21 f.)	5 (2 m., 3 f.)	2 (2 m., 0 f.)	8 (4 m., 4 f.)
Enteric Fever..... 12 (9 m., 3 f.)	1 (1 m., 0 f.)	none.	none.
Scarlatina..... 9 (2 m., 7 f.)	none	none.	none.
Croup..... 11 (5 m., 6 f.)	none	2 (0 m., 1 f.)	1 (1 m., 0 f.)
Bronchitis..... 14 (8 m., 6 f.)	none	none.	none.
Whooping Cough... 4 (1 m., 3 f.)	none	none.	none.
Measles..... 4 (3 m., 1 f.)	none	none.	none.
Influenza..... 2 (1 m., 1 f.)	1 (0 m., 1 f.)	1 (0 m., 1 f.)	none.

## COMPARATIVE MORTALITY IN CITY AND COUNTRY, MARCH, 1892.

	In 31 Cities and Villages, Pop. over 2,000 each. 461,158 inhabitants.		In Cities, Villages and Towns Pop. less than 2,000 each. 840,686 inhabitants.	
	Total Deaths	Deaths to 1,000 Living	Total Deaths	Deaths to 1,000 Living
Deaths from all causes.....	518 (281 m., 237 f.)	13.67	356 (189 m., 167 f.)	5.12
Tuberculosis.....	74 (38 m., 36 f.)	1.95	35 (19 m., 16 f.)	.50
Diphtheria.....	22 (11 m., 11 f.)	.58	23 (10 m., 13 f.)	.33
Pneumonia.....	63 (35 m., 28 f.)	1.66	22 (9 m., 13 f.)	.31
Enteric Fever.....	13 (10 m., 3 f.)	.34	15 (6 m., 9 f.)	.21
Scarlatina.....	9 (2 m., 7 f.)	.23	12 (4 m., 8 f.)	.17
Croup.....	13 (6 m., 7 f.)	.34	3 (1 m., 2 f.)	.04
Bronchitis.....	14 (8 m., 6 f.)	.36	5 (3 m., 2 f.)	.07
Whooping Cough....	4 (1 m., 3 f.)	.10	5 (2 m., 3 f.)	.07
Measles.....	4 (3 m., 1 f.)	.10	1 (0 m., 1 f.)	.01
Influenza.....	4 (1 m., 3 f.)	.10	14 (8 m., 6 f.)	.20
State at large.....			8.17 dead to 1,000 living	
Cities of First Class.....			15.93 "	"
Cities of Second Class.....			10.66 "	"
Cities of Third Class.....			9.63 "	"
Cities and villages of Fourth Class.....			9.49 "	"
Cities, villages and townships of Fifth Class.....			5.12 "	"

## THE MAY SANITARY INSPECTION OF CITIES, VILLAGES AND TOWNSHIPS.

The law requiring this inspection reads as follows:

"He (the Health Officer) shall make once a year in the month of May, and oftener if necessary, a thorough sanitary inspection of said town, village, borough or city, and present a written report of such inspection at the next meeting of the Board of Health, and he shall forward a copy of said report as soon as rendered to the State Board of Health." Chap. 4, Laws of 1885. Sec. 2.

*The essential fact of all sanitary work and methods, in any centre of population, whether a family, or many families, in township or city, is the constant production, and presence, of decomposing animal matter, where it is a perpetual menace to the purity of the air, water, and food supply of men, women and children.*

Outside the waste products of offensive trades and manufactures, the dangers from this organic matter become poisonous, are centered in the common receptacles of such matter, the privy, the cess-pool, the manure heap, and the kitchen slop and garbage pile. Common experience, and the scientific study of the direct relation of these things to disease, prove them to stand, often in the relation of cause, and always to be important. They are, themselves, easily accessible, and may be prevented or regulated.

The individual owner follows the almost invariable rule, if not prevented, i. e., as soon as one "hole in the ground" is full he fills, or rather covers it, and digs another alongside proceeding as before, and as for the cellar cleans it when he has to, or is compelled to do it. Most other sources of danger, to be discovered by the May inspection, are directly related to these, and so to find, suppress or regulate them is the first object of the survey.

A very common mistake and not confined to non-professional people either, is to suppose, or act as if they believed, that clean streets and alleys were enough to prove the village or city where they are, to be clean. Streets and alleys may be clean while houses and lots adjoining are filthy with the abominations above referred to. These facts the sanitary service must not ignore or forget, nor permit the people to do so either. To get them into available shape thorough and systematic inspection is necessary.

(A scheme for such inspection has already been printed and distributed for two or three years with a diagram of a practicable and easy method of recording results for future reference, and to note on the record action taken and changes affected. This will be sent to any one who asks for it. The Health Officer or Chairman who uses it will find his future labor in this direction to consist of a review of past work in the light of another year's experience, and that it systematizes his efforts in a very satisfactory way, so that nothing essential escapes him.)

It is important that this record be made as complete as possible at once. Suppose an outbreak of disease in any locality so surveyed, a moment suffices to give the Health Officer its present sanitary condition, and to enable him to judge what to do; how the disease is likely to affect other districts, if infectious; and he is able to lay out his plan for control, promptly and with reasonable assurance of success.

*Fore-knowledge of sanitary condition is the most important of the local factors of disease prevention or control, and is therefore the first duty of Boards of Health.*

**THE MOST IMPORTANT POINTS TO BE LOOKED AFTER IN THE ANNUAL INSPECTION.**

1. The number, construction, condition and location of all privies, cess-pools or other collections of fluid or semi-solid, filth.

2. The location and character of all other collections of refuse, animal or vegetable matter, now, or likely to become, a nuisance or cause of sickness.

3. The location and construction of wells and cisterns; their condition, and that of other sources of water supply, for public or family use; the source of the water, and in case of disease, or reasonable suspicion of its qualities, its examination. Springs and wells are to be studied, particularly with reference to 1 and 2.

(In cases where a laboratory examination of a suspected water is thought to be necessary, Health Officers and Chairmen will please write to the Secretary giving full details as to the grounds for suspicion, and for the proposed examination, when if a proper case, blanks will be sent and the examination made as soon as practicable. The only expense to the Local Board of Health is accurate report, the cost of containers, and express. A report of results will follow.)

4. The character, capacity, construction, and efficiency, of all drains, sewers, or other apparatus or methods of disposing of slops and other fluid refuse in the absence of public sewers.

5. The condition of lots (inhabited or not,) streets and alleys, as respects drainage and cleanliness.

6. The location of all trades or employments, "dangerous to the public health, or a nuisance; or attended by noisome or offensive odors, or otherwise injurious to the estates of the inhabitants." These trades are chiefly butcher shops, slaughter houses, stock barns, sheds, or yards, hog pens, dairies and creameries. (Chapter 222, Laws 1885.) Please report particularly, the number, character, and condition of these trades. The condition of stock yards to be carefully investigated.

7. The care and diseases of domestic animals, the condition of the barns, sheds, or pens, occupied by them, as affecting their health, and any other facts bearing upon public health, for example, milk supply, condition for slaughter of animals intended therefor, infectious disease. (Chapter 200, Laws 1885.) Look out carefully for any form of Tuberculosis in milch cows and report suspected cases.

8. The public or private disposal of night soil, garbage, offal or other vegetable or animal refuse.

9. The condition, purity and abundance of the public water supply.

10. The same facts as to the public sewer system.

11. The sanitary condition of buildings used for public assemblies, particularly school houses and places of amusement.

12. Sanitary condition of hotels, common boarding, and tenement houses, hospitals, poor houses, jails, lockups, livery stables, railway station houses, and stock yards.

13. Stagnant pools, swamps or marshy lands adjacent to residences, or liable to affect, injuriously, the public health.

14. The condition of ponds, lakes or streams, used in common by two or more sanitary districts. In case cause for complaint is found it should be made first to the authorities of the district, and if not attended to to the State Board.

15. In case of cause for complaint against railroads the Local Board should submit, in writing, to the Local Agent such order as it finds necessary to make, just as to any other person. If not attended to report the order and evidence to the State Board.

Copies of this and all other circulars of this Board can be had by writing to the Secretary at Red Wing.

# PUBLIC HEALTH IN MINNESOTA.

CHARLES N. HEWITT, M. D., Editor.

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APPENDIX—Small Pox. What is it, and how to Escape or Control it. . . . .

THIS is a combined number, representing the months of May and June. It is unavoidable, and desirable, that so much space should be given to the discussion of small pox, vaccination and Asiatic cholera because, from present appearances, they will be forced upon the attention of everybody this summer.

SMALL POX is more widely distributed and more severe than usual at this season, in this country. The same seems true in Europe, and in England there is considerable alarm. In our own country the State Board of Health of Illinois,

recently, issued a circular to the public reporting that small pox again threatens their State, urging vaccination and re-vaccination, and offering to supply virus at cost price, or if necessary, free. The disease is epidemic in Ohio and West Virginia along the Ohio river. For fuller details see page 37.

There are no cases in Minnesota at this date (July 15), seven cases in Danbury, Iowa, and several outbreaks in Ohio, West Virginia and Pennsylvania, between us and the sea-coast; but our greatest danger is from the infected clothing and baggage of immigrants coming through Canada and our own Atlantic sea-ports, New York and Boston.

One hundred and forty-eight immigrants, who had been exposed to small pox on ship-board, were reported by name, to the Secretary as coming to Minnesota from New York alone in May, and ninety-six in June.

Here is our greatest danger from small pox, and this is what is being done to forefend it. Immediate notice is sent to the threatened township, village or city, giving name, number and date of departure from the sea-board, the majority are found; clothing disinfected, vaccination examined, and the persons are kept under observation till the period of danger has passed.

Two false alarms since June 12 show that our Health Officers are on guard and watchful. Twenty false alarms would be a cheap price to pay for one real one promptly raised. Every one of the Local Boards of Health of the State is watching for the pest and should it appear arrangements are made to deal with it promptly and effectually. *The truest and most reliable protection against small pox is the vaccination of every child and the re-vaccination of all who have passed 10 years since the operation.*

We now have a pure and reliable vaccine of our own, collected, with every safeguard, from healthy, nursing calves, and furnished free of charge to Local Boards of Health who will see that it is used for those most exposed to danger—the children of the poor. It is for sale at cost price to all physicians who will report its operation. All money received for vaccine goes to pay a part of the expense of maintaining the station for its production and distribution.

THE TRAMP, AS A CARRIER OF INFECTIOUS DISEASE, deserves attention, particularly in country districts where he will swarm from this time until harvest is passed. Small pox and enteric (typhoid) fever have come to us in this way. It is cheaper for the Local Boards to give such men an opportunity to boil their clothes and wash themselves, as a condition of being allowed to remain, than to care for them or others sick through infection they may bring. The one costs nothing but hot water, soap, the use of a wash tub, and a little time; the other causes suffering, possible death, and is a heavy draft on public and private funds.

FREE VACCINATION on the conditions proposed in the "Memorandum on Vaccine and Vaccination," is being gradually adopted by Local Boards but too slowly. Dr. Hoyt has begun it in St. Paul, leading off in a movement which should be general. Dr. A. T. Conley, of Cannon Falls, and Dr. Goffe, of Duluth, have begun this month, and some others who have not reported fully. Let me quote from the paper:

*"It is the poorer population who need the protection of vaccination most, (because they are likely to be the most exposed). It is economy to provide, at very slight cost, against a disease of which a single case costs a village or city more money than the vaccination of all unprotected children would do."*

Any Health Officer, who undertakes public vaccination, will be surprised at the readiness with which it will be sought after the vaccine has had opportunity to prove its value by its mild and typical operation.

COMPULSORY VACCINATION IS NOT THE LAW IN MINNESOTA. This in reply to many inquiries from Township Boards as to their rights and duties in the matter. During the great epidemics of some years ago the legislature was in session and a compulsory law was repeatedly proposed but the executive officer of the State Board steadily opposed it and is of the same opinion still.

*But what shall we do?* ask the Chairmen and Boards who know the popular carelessness and want to remove the danger. Do this:

1. See that your own children are vaccinated immediately, and let yourself and those of your family who were vaccinated in childhood, accept re-vaccination. Do this because it is the sensible and safe thing to do, and beside it enables you to "prove your preaching by your practice," which, in this matter, the writer has found to be the best way.

2. Let the Local Board of Health arrange for the free vaccination proposed in the circular on "Vaccine and Vaccination," and if a medical man is not available, write to the Secretary about it, so that an arrangement can be made.

3. Distribute the circulars on "Small Pox," on "Vaccine and Vaccination," and on "What's the Use of Vaccination," where they will be read, and become perfectly familiar with them yourself.

4. Bring the influence of the best element of your population to induce the school boards to require a certificate of recent and successful vaccination for admission to the public schools this fall.

In all this there is no compulsion, but only the persistent effort of a careful and thoughtful Board of Health to secure the widest acceptance of the most safe and reliable of the measures against small pox.

---

HUMANIZED VACCINE HAS FALLEN INTO UNDESERVED DISUSE, for reasons which I hope to discuss at another time. Now it is my duty to urge Health Officers and physicians to cultivate it when they can, using our calf-lymph to begin with. There are many ways of doing this, as for example vaccinating and re-vaccinating a whole family from a vesicle on the arm of a baby of the household, and offering it to others who know the child. But my principal motive is to advise this form of vaccination in case we are visited by small pox at any time, as the only one which, after the first week, can supply the demand with virus, fresh and more sure "to take" than any other. This I know from a long and varied experience with both forms of vaccine, and to prevent misapprehension make the statement here.

It is at such times that the commercial supply of animal vaccine is put to its severest trial and so often fails because the commercial "business" instinct is zealous to reap the exceptional harvest offered and the worthy and trusty supply is not equal to the demand. It would take our own station at least two weeks to begin to supply 1000 points a day regularly, and it is arranged so as to be prepared to do so after that time. We keep, also, always in stock, 1000 points, or their equivalent, for emergency.

C. N. H.

---

ASIATIC CHOLERA has begun another march across Asia and Europe with a strong probability that if it reach the western shore of Europe it will cross the Atlantic to this country, as it has done before. It comes in the persons or baggage of travelers, mostly immigrants, and enters through our seaboard ports, New York, Boston, Baltimore, Philadelphia and New Orleans, and through the St. Lawrence Canadian ports.

Our immigrant notification system, now adopted by the Immigration Bureau of the United States serves a very useful purpose in the prevention and control of imported infectious disease, and will give us our first official notice of the arrival

of cholera should it come, and we have other means of knowing the facts and shall be fully aware of any danger known our professional brethren at the seacoast and in England.

There are some facts very important for all intelligent people to know about cholera which well understood will make the work of meeting it, if it come, much easier and more successful.

1. Cholera is caused by a specific germ called the "comma bacillus" from its form, it is a minute vegetable cell which grows in the intestinal canal of man and produces there the specific poison which causes the peculiar symptoms of the disease. *Without this microbe Asiatic Cholera cannot exist.*

2. Cholera has its home in the delta of the Ganges and is spread thence along the line of human travel and probably by both the persons and baggage of its victims. It makes better time every year because of increased facilities of travel.

3. It will enter our country, if at all, at one of the seaports named, in the body, or baggage, of an immigrant, and it is therefore manifest that our best protection will be the surety and efficiency of the seacoast sanitary service. That of New Orleans is probably the best in location and efficiency, next comes New York for equipment, but the service is hampered by the "Tammany Grip." If the Health Officer is let alone the work will be well done. Boston is well managed; of Baltimore the writer knows little; of Philadelphia the work is divided between the Marine Hospital service, at Delaware breakwater, and the State Quarantine Service near Philadelphia and in co-operation with the State Board of Health. Portland is not a port of entry in warm weather. There remains the St. Lawrence Quarantine Service of the Dominion Government which is now building a steam disinfecting plant and which has arrangements for disinfecting by chemicals and steam the hospitals of infected ships. No notification has yet been arranged with Canada, though the Medical Superintendent favors it. The writer has visited and examined all these stations except New Orleans and Baltimore, is acquainted with the medical officers and their methods, and also with some of their difficulties. Then comes the Immigrant Service of the U. S., which take the

immigrant after he has passed the State Sanitary examination and deals with him under the immigration laws which were not intended originally to look out for infectious diseases except incidentally. At the solicitation of the writer it undertook the notification of immigrants suspect of infectious diseases to the State Boards of Health, deriving its information, usually, from the State Health Officers of the various ports. The position of the Marine Hospital Service, as respects immigrants, is not settled except as it has charge of certain quarantine stations outside the State limits on the seaboard and co-operates with State, as it did with this Board, in securing seaboard notification.

*But if cholera escapes the sea-coast sanitary barriers, what then?* It will be impossible to deal with it by the same methods because its victims will be scattered so widely that to trace individuals will be an impossibility, or to follow a ship's load whose intended destination is known. This leads to another fact about the disease. The microbe must find suitable soil and moisture, and it does so in the earth, water, air or other things fouled by decaying vegetable or animal matter. In pure air, soil or water it establishes itself living with difficulty, or if at all, feebly, and dies early. Our best home protection against cholera is thorough and constant cleanliness, personal, family, and municipal. If these are reasonably and steadily maintained, cholera cannot become epidemic, and if it come will be easily crushed out. The directions in the circulars of the State Board of Health on "Sanitary Inspection of Cities, Villages and Town," and "Domestic Hygiene," with enforcement of existing laws against nuisance and offensive trades will secure our reasonable safety and prevent all danger of epidemic prevalence.

*But if cholera does come, what then?* Avoid senseless panic, isolate the case under the direction of the Local Board of Health, and make sure that all discharges are instantly disinfected; watch for any case of diarrhoea which should be properly cared for with the same disinfection as for cholera. It is a curious fact that while the mortality from cholera infantum averages more than 1000 victims every year in Minnesota, who are under five years of age, and that 22% of all deaths under that age are from this cause, there is not only no popular alarm, but it is, so far, impossible to secure any popular co-

operation to diminish or prevent the slaughter. *If we did our best to prevent cholera infantum there would be little danger of Asiatic cholera,* which if it came as epidemic would not be likely to kill 1000 victims, as the diarrhoea of children does every year.

---

### I MMIGRANT INSPECTION BY LOCAL BOARDS OF HEALTH

is just now a very important matter, and the following is in answer to numerous inquiries as to the best methods of doing the work:

*Notice of arrival* in villages and cities, is easily arranged for through the station master and the police where there are railroad facilities. Off the railroads, in villages, each member of the Local Board and the constable should be on the lookout. *In township;* notice should be published of a resolution of the Local Board of Health asking all residents to report the arrival of immigrants to the nearest supervisors, so that they, their clothing and baggage, may be under reasonable oversight of the Board. The order should state why co-operation is asked.

*Where the exposure reported was to measles,* the only precaution needful is to isolate all suspected immigrants for 10 days; to insist that all have baths; that clothing and baggage be washed *in boiling water* with soap immediately, and well dried, after which they may go. Should a case occur isolate till well.

*If to scarlatina.* the isolation should be for a week, with baths and washing of clothing and baggage as above, when the well are to be let go.

*If to small pox,* immediate isolation till examined. *Insist on baths and disinfection* as above, *for all,* then examine for recent vaccination. If found to be recent and good, the person may go. If no evidence of recent vaccination, re-vaccinate immediately and if, after six days, it begins to "work" well, that person may go. If working well in others at the same time it does not take in one who has good "scars" of a previous vaccination, that person may go. If any one, not having evidence of a recent vaccination, refuse to accept it, he must be kept under observation for 14 days, when, if well, he may go. Persons who have been exposed to small pox, and since arrival, have had a good bath of hot soap-suds, including the scalp, and whose clothing and baggage has been scalded and washed, if showing no signs of sickness, may be permitted the freedom of the farm and do ordinary work, but are not to leave it till discharged as above. Any one violating the agreement should be isolated as not to be trusted till danger to others has passed. All suspicious cases of skin diseases should be treated as small pox till proved, by a little time, to be something else. In all such cases a physician should be consulted, and full details written to the Secretary at Red Wing. In case of doubt or difficulty, always consult him. If urgent, telegraph a brief statement, sending details by mail under "special delivery" stamp.

**I**MMIGRATION into our State is well illustrated by the following returns: By the immigration agent of the St. Paul Union Depot, J. W. Anderson, for April and May, 1892:

From Sweden...	389	568	Germany...	370	553	Norway.....	392	461
" Russia.....	178	167	Italy.....	74	90	Denmark....	120	38
" Austria ...	19	35	Bohemia..	7	21	Poland.....	28	30
" Finland ...	1	17	Holland...	80	16	England....	32	12
" Ireland....	23	11	Scotland..	30	2	Switzerl'd...	11	0
" Wales.....	3	0	France.....	1	0			

Totals, 1773 2021 | M. 1058 1209 | F. 715 812 | For Minn. 1511 1099

Minneapolis Union Depot—Report for June, 1892, by John R. Groettum, Immigrant agent:

From Sweden.....	975	Norway.....	1129	Denmark.....	84
" Germany.....	239	Others .....	233		

Total.....2457 Males.....1335 Females.....1122 In Minnesota...1730

One case measles sent to quarantine hospital, woman 21 years old. On recovery went to North Dakota.

*Reports of U. S. Commissioners of Immigration from the sea-ports specified, for the months of May and June, 1892.*

(These reports, giving name, number and destination in Minnesota are made up immediately from the books of the commissioners and forwarded to the Secretary, who promptly notifies the chairmen and Health Officers interested, by telegraph or mail as occasion requires.)

Number of reports received from U. S. Commissioners of Immigration during May and June, 1892..... 20 10

Number of suspected immigrants reported ..... 1059 945

Details as follows:

FROM NEW YORK HARBOR.

Immigrants exposed to measles.....	636	743
" " measles and smallpox.....	4	20
" " measles and searlatina.....	216	42
" " varicella.....		63
" " small pox .....	94	76
" " varioloid.....	48	
" " searlatina .....	41	1
Total .....	1039	945

FROM BOSTON.

Immigrants exposed to measles..... 20 0

Total exposed to infectious disease coming to Minnesota..... 1095 975

The May immigrants went to 159 different places in the State, and 217 separate lists were sent out by the Secretary to Local Boards of Health.

The June immigrants went to 139 different localities in the State; 243 separate lists were sent by the Secretary.

It will be observed that there were 148 exposures to small pox reported during May and 96 in June.

**T**HE DOMINION QUARANTINE AUTHORITIES have been formally asked to give the same notification as we have secured from the U. S. Immigration Service, of infected or suspected immigrants, but as yet no arrangement has

been made. It will be very unfortunate if it prove necessary to re-establish an Inspection service at Port Huron and Detroit, with a new one for the Canadian Pacific Railroad, for immigrants coming through Canada.

### INFECTIOUS DISEASES OF MEN.

#### NOTIFICATION OF INFECTIOUS DISEASES, APRIL AND MAY, 1892.

	APRIL.	MAY.
Diphtheria .....	101 cases, 23 deaths.	79 cases, 25 deaths
Scarlatina .....	163 cases, 14 deaths.	132 cases, 10 deaths
In St. Paul and Minneapolis of above—		
Diphtheria .....	41 cases, 13 deaths	46 cases, 14 deaths
Scarlatina.....	92 cases, 3 deaths.	87 cases, 6 deaths

"**I**T IS ONLY A MILD CASE OF SCARLATINA AND NOT DANGEROUS," was the report of one physician to a township Board of Health. A medical man should know better. A "mild" case of any infectious disease is just as infectious to one not protected from that affection as a severe case. And such cases often do more damage to others because their so-called "mildness" wards off or misleads suspicion. Chairmen should not be influenced in deciding upon isolation of a case of "mild scarlatina" except to use increased vigilance in the search for other cases and the care of the "mild" one.

#### INFECTIOUS DISEASES—THEIR WHEREABOUTS.

(Our office register is a large map showing every township, borough, village, and city. Infectious diseases are recorded by colored pins as soon as reported, and this mark is not removed till the outbreak is officially reported to have ceased, and disinfection done.)

**Minnesota.**—*Diphtheria*—During April invaded 28 localities in 20 counties; 1 locality in 14 counties; 2 in 4; 3 in 2. Less than last month. During May invaded 20 localities in 15 counties; 1 locality in 12 counties; 2 in 1; 3 in 2.

*Scarlatina*—During April invaded 23 localities in 16 counties; 1 locality in 12 counties; 2 in 1; 3 in 3. During May invaded 17 localities in 13 counties; 1 locality in 11 counties; 3 in 2.

*California* reports, May 4, a case of *varioloid*, discovered in person of a native of Sandwich Islands, on a fishing boat, four miles above Sacramento, May 3, 1892. Came direct from San Francisco, walked from wharf through seven business blocks with companion and presented himself to the authorities. No further report to July 1.

*Michigan* reports, May 30, a fatal case of *small pox* at Green Oak township, Livingstone county, in person of an English immigrant. Landed at Quebec three weeks ago, came to Detroit, thence via. D., L. & N. R. R., to Green Oak, where he was taken sick May 20. Died May 28. Patient stated several sick on ship with two or three deaths. Was called measles. His case was diagnosed measles and not called small pox until May 28.

*Ohio* reports, 15th, *small pox* to date, 27 cases in 7 localities; died 5; discharged 9; infected houses 17. Inspectors appointed and the Secretary in charge of quarantine. June 24, reports small pox situation at date, 9 cases in 3 localities; 20 convalescent cases under quarantine. Passengers and bag-

gage from infected localities still inspected and certified. Passengers vaccinated.

*Iowa* reports 7 cases at Danbury, Woodbury county, near Sioux Falls. Isolation and vaccination. Brought from New Mexico by patients convalescent from small pox.

*Pennsylvania* reports, June 15th, 5 cases *small pox*, 4 at Pittsburgh, 1 at Coudersport, Potter county. Residents—Isolation, disinfection and vaccination. June 20, reports another case at Pittsburgh, in immigrant direct from Ireland. Arrived 7 days since. Precautions as before.

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**C**OMPENSATION OF CHAIRMEN OR MEMBERS OF TOWNSHIP BOARDS FOR SANITARY SERVICE, should be at the same rate as for parellel duty in any other department of Board work. This in answer to complaints that compensation is objected to. The one is as legal a claim as the other because both are prescribed in law.

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**H**OW NOT TO DO IT, is well illustrated by the following. The Clerk of a Township Board reports by mail:

"Supervisors notified of a case of black measles or small pox, on Section 1. Advise us what to do. We think if you would send a doctor from next village it would be best, as case came from New York (probably immigrant), traced here and that State Board had notified Village Board to look for it. If anything is required more than State Board can do, let us know at once." None of this Board accessible by telegraph, so telegraphed Health Officer of village to visit, isolate, if necessary, and report. He telegraphed next day, "an immigrant who had been vaccinated; nothing more. Found the woman well and frying doughnuts."

Our records show that the woman in question landed in New York, May 28, that the Village Board was notified on the 31st of her expected arrival.

Writing this information to the clerk, the Secretary called attention to Sec. 18, Chap. 132, Laws 83, of which all Boards have copies:

"Sec. 18. (I) shall be the duty of all Local Boards of Health, whenever they are informed that there is a case of small pox, scarlet fever, diphtheria or other infections or contagious disease within the territory over which it has jurisdiction, to immediately examine into the facts of the case, and if the disease appears to be of the character above specified, they shall adopt such quarantine and sanitary measures as may in their judgment tend to prevent the spread of said disease in its locality, subject to be modified by the State Board of Health, and shall immediately notify the Secretary of said State Board, of the appearance of such disease and the measures adopted by said Local Board in relation thereto."

The chairman or other representative of the Board should have immediately visited the suspected person, and have gotten at the facts of the case and if afraid or unwilling to enter the house should have isolated the building and its inhabitants and immediately sent for a competent physician to advise, at the expense of the town, obtained his written report, of which a copy should have been forwarded to the Secretary "by quick delivery," with a statement of the action of the Local Board thereon.

*If this case proven to have been small-pox, three days of valuable time would have been lost before the real fact would have been known and proper measures taken.* The language of the law is clear and unmistakable, as will be seen on careful reading. In ease of emergency telegraph facts briefly and write details under immediate delivery stamp.

*SUPERVISOR'S HELP IN THE COLLECTION OF VITAL  
STATISTICS.*

A capital suggestion by Mr. S. Paulson, clerk of Torning, Swift county, under date, June 7, is made in the following letter:

DEGRAFF, June 7, 1892.

C. N. HEWITT, M. D., Secretary State Board of Health, Red Wing, Minn.,

*Dear Sir:—I enclose two returns, one each of deaths and births, which is all that occurred during May, as far as I know. I have requested the supervisors to try and make the people report promptly in their locality, so I hope reports will be more regular than hitherto, at least I'll do my level best.*

No contagious disease, either of man or beast, has been reported up to date in this town.

Yours truly,                           SAMUEL PAULSON, Clerk Torning Twp, Swift Co.

Thank you, Mr. Paulson, and we heartily second the proposition. So will the supervisors, for clerks are practically their agents in the collection of Vital Statistics. Geographical location is always considered in selecting supervisors, who living in different parts of the township can easily learn and report to the clerk all births and deaths in their neighborhood, and having a supply of birth and death blanks can distribute them and do much to have them promptly filled and forwarded to the clerk. It would be for the advantage of the clerks to supply these blanks in prepaid and addressed envelopes as saving them much time and expense of personal inquiry.

*THE MINNESOTA VACCINE STATION.*

FOR THE PROPAGATION OF PURE CALF VACCINE.

ESTABLISHED DECEMBER, 1890.

Under personal direction of the Secretary.

The work began with a personal visit to all the leading vaccine stations of Europe and the United States and a study of methods, and results, under representative producers and users of vaccine, both animal and humanized. After this experience the virus selected was that of the National Vaccine Institution of England, in London. This has been carefully cultivated on healthy, nursing calves, under the best conditions, and the result is a vaccine which is pure, active and typical in its operation, and is kept to the highest standard by the most careful attention to every detail in its production, and by the constant use of the crucial test—the result of its use in the hands of medical men, a report of which is the invariable condition of its issue. The station is now in Red Wing, near the Secretary's office, and under his personal control.

The object of this establishment is—

1. To answer professional and popular objection to humanized vaccine by furnishing one of natural origin which has never entered a human body, is cultivated on healthy, nursing calves, who drink the milk of our own cows, selected for the purpose, and whose bodies are examined after slaughter for any evidence of disease.
2. To maintain a constant supply of calf vaccine.
  - (a) For the free vaccination of children in Minnesota under proper restrictions, and under the direction of the Local Boards of Health.
  - (b) To be prepared for the emergency of a sudden outbreak of small pox in the State.
  - (c) To supply to physicians, what they have long asked, reliable calf lymph at reasonable prices.
  - (d) To be able to offer to other State and Local Boards of Health the same facilities as to our own.

(e) In the above and other helpful ways, to do our share to restore vaccination to its rightful place as the surest protection against small pox.

*Conditions of supply*—All supplies, whether by gift or purchase, are conditioned on the prompt report of results on the day-week of use, so that the producer may know, at the earliest moment, the operation of the product of each calf.

*Free*—To Local Boards of Health, in agreed quantities and on certain conditions, for the free vaccination of children, and in any necessary amount, for use in presence of small pox. To physicians (five points) for first trial.

*Prices*—All orders to be prepaid. For any point which (used as directed on wrapper, within two weeks after receipt), fails to produce one typical vesicle, another will be sent on prompt notice. Ten points, \$1.00; 20 to 50 points, at one order, at the rate of \$7.50 per 100; 50 points or more in one order, at the rate of \$6.00 per 100.

With all virus issued will be sent printed directions for use, a postal card ruled for the "day-week" report, and a circular letter.

*Certificate of Vaccination*. We have prepared a neat card to be filled out by Health Officers for children upon whom our vaccine has been used and who present satisfactory vesicles on the day-week. It will be found a strong inducement to report on the seventh day.

WHAT IS THE USE OF VACCINATION? is a sensible question asked very directly and positively by all sorts of people when the operation is proposed, and it is important that Health Officers, chairmen, and members of Local Boards of Health, be ready to give prompt and decisive answers. Here is one which I find in a late London "Sanitary Record." It is an abstract of certain evidence collected during the great Sheffield epidemic by Dr. Barry, one of the ablest of medical inspectors of the Local Government Board of England. The full report is a very elaborate and painstaking work, and this little excerpt has been arranged by an English Health Officer, Dr. Thresh, for the very use here proposed.

"TABLE SHOWING THE RELATIVE LIABILITY OF VACCINATED AND UNVACCINATED PERSONS TO TAKE, AND DIE FROM SMALL POX DURING AN EPIDEMIC OF THE DISEASE."

Of every 1000 unvaccinated children, (under 10).....	101 had small pox
Of every 1000 vaccinated children (under 10).....	5 had small pox

In other words, *unvaccinated* children are twenty times more liable to an attack of small pox than those who have been vaccinated.

Of every 1000 unvaccinated persons (over 10 years of age)....	94 had small pox
Of every 1000 vaccinated persons (over 10 years) .....	19 had small pox

*Unvaccinated* persons, over 10 years of age, are five times more liable to take small pox than vaccinated of the same class.

Of every 100 unvaccinated children who took small pox.....	44 died
Of every 100 vaccinated children who took small pox.....	5 died

An *unvaccinated* child (under 10) is 20 times more liable to take small pox, and 22 times more liable to die, and its chance of death is 440 times greater than that of a vaccinated child.

Of every 100 unvaccinated persons (over 10) who took small pox.....54 died  
Of every 100 vaccinated persons (over 10) who took small pox ..... 5 died

An unvaccinated person (over 10 years old) is 5 times more liable to small pox, and 20 times more liable to die of it than one vaccinated, while his liability to death during an epidemic is 55 times greater."

So much for recent statistics collected under a brisk and bitter criticism, and undisputed as to accuracy.

To this should be added the important fact that blindness, deafness, deformity, and chronic ill health are the fate of those unvaccinated persons who survive the unmitigated disease, and that our own experience in eighty outbreaks confirms both conclusions.

There is still another question, which will invariably follow the first, but which there is not the slightest difficulty in answering satisfactorily now, because we have our own vaccine concerning which we can speak what we know after nearly two years severe trial.

*What of the danger of transmitting syphilis, scrofula (tuberculosis), leprosy, and other fatal and loathsome disease with vaccine?* The vaccine supplied under the direction of the State Board of Health of Minnesota came from a case of natural "vaccinia," through the National Vaccine Institution of England; has always been cultivated on young calves, and since brought to Minnesota upon nursing calves, who are fed upon the milk of selected cows owned and kept for that purpose alone. Every calf used, and every sample of vaccine collected, is submitted to the severest tests, the last being the examination of the carcass immediately after slaughter, when there is the slightest suspicion of disease. We are able, in this way, to dispose of objections which are almost fatal to the use of vaccine whose history is not above suspicion. It is not necessary to discuss doubts which do not apply, nor to dispute the value of other vaccine, but only to state the grounds for confidence in our own.

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PROFESSIONAL opinion of the "Minnesota Vaccine," based upon a personal trial of it in private practice is very desirable. The following are from disinterested sources outside our State:

*Dr. J. T. Reeves*, Secretary of the Wisconsin State Board of Health, writes, under date of March 10, 1892: "As to the virus, I used it on some small children. It worked promptly and with typical results. I was exceedingly pleased with it. I am very glad you are engaged in the propagation of some such virus, and shall esteem it a matter of especial good fortune if the Health Officers of this State can, in emergency, obtain a supply of virus of such purity and power."

*Dr. J. F. Kennedy*, Secretary State Board of Iowa, writes: "Of the virus you sent me (by request) I used one point on my own family, a re-vaccination. *It did well.*"

*Dr. Chas. Lehlbach*, Sanitary Commissioner of Newark, N. J., writing of our vaccine, used during the small pox epidemic there last winter: "The virus proved exceptionally good."

*Dr. E. Garrett*, the Senior Medical Inspector Department of Chicago, writes, May 10, 1892: "I followed your suggestions as to the mode of mak-

ing the insertions, and I must say that the vesicles were as perfect as any I ever saw. If all your points work as well as those you sent me, you can well feel proud of your success."

*Dr. Chas. D. Smith*, Member State Board of Health of Maine, visited our station in January; was re-vaccinated directly from the calf which happened to be in use at the time, and took virus home for trial. He reports "eight primary vaccinations in infants and young children, seven successful, well marked, excellent vesicles, typical. Re-vaccinations four, two failures, one imperfect, and one with large vesicle and severe constitutional disturbance."

#### INFECTIOUS DISEASES OF DOMESTIC ANIMALS.

##### Glanders—

APRIL AND MAY, 1892.

Remaining on hand, April 1 .....	10	Killed during the month.....	3
Reported during the month.....	3	Released during the month .....	0
		Remaining isolated May 1, 1892, 10.	

Most of them "suspects" under observation.

Remaining on hand, May 1 .....	10	Reported during the month.....	8
Killed during the month.....	0	Released during the month.....	0
		Remaining isolated June 1, 1892, 18.	

Most of them "suspects" under observation.

#### MINNESOTA WEATHER SERVICE.—REPORT FOR APRIL, '92.

FURNISHED BY MINNESOTA STATE WEATHER SERVICE, J. H. HARMON, DIRECTOR.

ATMOSPHERIC PRESSURE—IN INCHES—Monthly mean for State, 30.04; maximum observed 30.53, at Duluth, on the 25th; minimum observed, 29.06, at Northfield, on the 1st; range, 1.47.

TEMPERATURE, DEG. F.—Monthly mean for State, 40.1; monthly mean for northern section, 35.8; monthly mean for central section, 40.1; monthly mean for southern section, 41.8; highest monthly mean, 43.4, at Minneapolis; lowest monthly mean, 34.5, at Pine River Dam; maximum observed, 60, at Montevideo, on the 23d; minimum observed, -2, at St. Vincent, on the 28th. Greatest local monthly range, 69, at St. Vincent; least local monthly range, 40, at Sheldon; greatest daily range, 36, at St. Vincent, on the 22d; least daily range, 1, at Duluth on the 4th.

PRECIPITATION—IN INCHES.—Average for State, 2.84; average for northern section, 2.71; average for central section, 2.57; average for southern section, 2.96; greatest amount, 6.23, at Rolling Green; least amount, 0.63, at Minneapolis.

WIND.—Prevailing direction, east.

##### SUMMARY FOR MAY, 1892.

ATMOSPHERIC PRESSURE, (in inches)—Monthly mean for State, 29.94; maximum observed, 30.61, at Duluth, on the 8th; minimum observed, 29.19, at St. Vincent, on the 28th; range, 0.75.

TEMPERATURE (deg. F.)—Monthly mean for State, 49.3; monthly mean for northern section, 45.8; monthly mean for central section, 43.7; monthly mean for southern section, 50.6; highest monthly mean, 52.9, at Sheldon; lowest monthly mean, 44.6, at Pogema Falls; maximum observed, 79, at St. Vincent on the 16th; minimum observed, 22, at Eagle Bend, on the 8th; range for State, 57; mean maximum for State, 74.9; mean minimum for State, 28.3; greatest local monthly range, 54, at St. Vincent; least local monthly range, 34, at Sheldon; greatest daily range, 39, at St. Vincent on the 16th; least daily range, 3, at St. Paul on the 1st; Red Wing on the 3d; Moorhead on the 5th; Duluth on the 6th.

WIND—Prevailing direction, northwest.

PRECIPITATION (in inches)—Average for State, 6.62; average for northern section, 5.02; average for central section, 6.60; average for southern section, 7.28; greatest amount, 9.91, at Northfield; least amount, 2.22, at St. Vincent.

DISTRIBUTION AND MORTALITY OF THE MORE IMPORTANT DISEASES IN MINNESOTA in April, 1892, (from returns of 809 localities, received up to May 24, 1892,) in May, 1892 (from returns of 842 localities, up to June 20, 1892.)

POPULATION, (CENSUS OF 1890.)

STATE .....	1,301,826
1. First Class (cities of over 100,000), St. Paul and Minneapolis.....	297,894
2. Second Class (cities of between 15,000 and 50,000), Duluth and Winona .....	51,323

3. <i>Third Class</i> (cities of between 5,000 and 15,000), Stillwater, St. Cloud, Mankato, Faribault, Red Wing, Brainerd and Rochester.....	51,622
4. <i>Fourth Class</i> (20 cities and villages of over 2,000 and less than 5,000 population) .....	60,319
5. <i>Fifth Class</i> (cities, villages and townships, population less than 2,000).....	840,658

The following tables are founded on 848 deaths in April and 859 deaths in May.

Total, April, 1892.	Localities Invaded.	No. Counties Invaded.	MORTALITY IN STATE.—APRIL.		Average of 5 Years. April An'l Rate per No. of cases. 1,000 Living
			April	An'l Rate per No. of cases.	
From all causes....	848 (447-101)			868.4	8.11
Tuberculosis.....	96 (49-47)	35	32	101.3 (av. 3 yrs.)	.97
Diphtheria.....	40 (22-18)	19	17	45	.42
Pneumonia.....	73 (39-34)	27	23	75.6	.70
Enteric Fever.....	12 (7-5)	7	7	1.6	.17
Scarlatina.....	20 (9-11)	13	12	15.4	.14
Croup.....	17 (9-8)	15	15	12.4	.11
Bronchitis.....	35 (21-11)	14	12	36	.33
Whooping Cough.....	19 (3-7)	6	6	9.5 (av. 2 yrs.)	.88
Measles.....	14 (5-9)	6	6	13.8	.1
Influenza.....	19 (13-6)	16	16	24.6	.23

#### MORTALITY BY CLASSES. (See population above).

	1—First Class.	2—Second Class.	3—Third Class	4—Fourth Class.
From all causes ....	375 (201 m., 174 f.)	57 (30 m., 27 f.)	40 (20 m., 20 f.)	43 (26 m., 17 f.)
Tuberculosis.....	49 (13 m., 33 f.)	10 (4 m., 6 f.)	5 (3 m., 2 f.)	4 (2 m., 0 f.)
Diphtheria.....	11 (8 m., 3 f.)	3 (2 m., 1 f.)	1 (1 m., 0 f.)	6 (3 m., 3 f.)
Pneumonia.....	43 (27 m., 16 f.)	4 (1 m., 3 f.)	2 (1 m., 1 f.)	none.
Enteric Fever.....	6 (4 m., 2 f.)	none.	none.	2 (1 m., 1 f.)
Scarlatina.....	3 (2 m., 1 f.)	none.	none.	3 (1 m., 2 f.)
Croup.....	4 (2 m., 2 f.)	2 (2 m., 0 f.)	1 (1 m., 0 f.)	1 (1 m., 0 f.)
Bronchitis.....	23 (16 m., 7 f.)	1 (0 m., 1 f.)	1 (1 m., 0 f.)	1 (1 m., 0 f.)
Whooping Cough.....	5 (1 m., 4 f.)	none.	none.	none.
Measles.....	8 (3 m., 5 f.)	2 (1 m., 1 f.)	1 (1 m., 0 f.)	none.
Influenza.....	4 (4 m., 0 f.)	none.	none.	none.

#### COMPARATIVE MORTALITY IN CITY AND COUNTRY, APRIL, 1892.

	In 31 Cities and Villages, Pop. over 2,000 each. 461,158 inhabitants.		In Cities, Villages and Towns, Pop. less than 2,000 each. 840,658 inhabitants.	
	Total Deaths	Deaths to 1,000 Living	Total Deaths	Deaths to 1,000 Living
Deaths from all causes.....	515 (277 m., 238 f.)	13.59	333 (170 m., 163 f.)	4.79
Tuberculosis.....	65 (33 m., 32 f.)	1.61	31 (16 m., 15 f.)	.44
Diphtheria.....	21 (11 m., 7 f.)	.55	19 (8 m., 11 f.)	.27
Pneumonia.....	49 (29 m., 20 f.)	1.29	24 (10 m., 11 f.)	.34
Enteric Fever.....	8 (5 m., 3 f.)	.21	4 (2 m., 2 f.)	.05
Scarlatina.....	6 (3 m., 3 f.)	.15	11 (6 m., 8 f.)	.10
Croup.....	8 (6 m., 2 f.)	.21	9 (3 m., 6 f.)	.12
Bronchitis.....	26 (18 m., 8 f.)	.68	9 (6 m., 3 f.)	.12
Whooping Cough.....	5 (1 m., 4 f.)	.13	5 (2 m., 3 f.)	.07
Measles.....	11 (5 m., 6 f.)	.29	3 (0 m., 3 f.)	.04
Influenza.....	4 (4 m., 0 f.)	.10	15 (9 m., 6 f.)	.21

State at large.....	7.83 dead to 1,000 living
Cities of First Class.....	15.52 "
Cities of Second Class.....	13.40 "
Cities of Third Class.....	9.40 "
Cities and villages of Fourth Class.....	8.68 "
Cities, villages and townships of Fifth Class.....	4.79 "

## MORTALITY IN STATE.—MAY.

	Total, May, 1892.	Localities Invaded	Counties Invaded	Average of 5 years. May. No. of Cases.	Ann'l Rate per 1,000 Living
From all causes . . . . .	859—479 m., 340 f.	38	35	871.5 (av. 4 yrs.)	.84
Tuberculosis . . . . .	98—48 m., 50 f.	17	17	105. (av. 4 yrs.)	.98
Diphtheria . . . . .	37—20 m., 17 f.	9	9	41.8	.39
Croup . . . . .	12—7 m., 5 f.	11	11		.10
Pneumonia . . . . .	80—44 m., 36 f.	22	18	80.	.74
Bronchitis . . . . .	38—25 m., 13 f.	11	11	30.	.28
Enteric Fever . . . . .	12—7 m., 5 f.	10	10	14.8	.13
Scarlatina . . . . .	18—11 m., 7 f.	14	12	19.4	.18
Whooping Cough . . . . .	9—4 m., 5 f.	9	9	9.6 (av. 3 yrs.)	.08
Measles . . . . .	18—10 m., 8 f.	11	11	24	.22
Diarrh. Dis. of Chil'n . . . . .	17—16 m., 1 f.	11	11	14.2	.13
Influenza . . . . .	4—2 m., 2 f.	4	4	16. (av. 3 yrs.)	.14

## MORTALITY BY CLASSES. (See population above.)

	1—First Class.	2—Second Class.	3—Third Class.	4—Fourth Class
From all causes . . . . .	400—213 m., 187 f.	64—30 m., 34 f.	46—30 m., 16 f.	46—29 m., 17 f.
Tuberculosis . . . . .	53—25 m., 28 f.	3—1 m., 2 f.	7—5 m., 2 f.	2—1 m., 1 f.
Diphtheria . . . . .	15—6 m., 9 f.	3—1 m., 2 f.	2—1 m., 1 f.	5—4 m., 1 f.
Croup . . . . .	1—0 m., 1 f.	None.	None.	1—1 m., 0 f.
Pneumonia . . . . .	53—32 m., 21 f.	6—3 m., 3 f.	6—4 m., 2 f.	8—0 m., 3 f.
Bronchitis . . . . .	21—16 m., 8 f.	3—2 m., 1 f.	4—1 m., 3 f.	3—3 m., 0 f.
Enteric Fever . . . . .	3—2 m., 1 f.	2—1 m., 1 f.	None.	1—1 m., 0 f.
Scarlatina . . . . .	5—4 m., 1 f.	2—0 m., 2 f.	1—1 m., 0 f.	None.
Whooping Cough . . . . .	2—1 m., 1 f.	None.	1—1 m., 0 f.	None.
Measles . . . . .	7—4 m., 3 f.	2—0 m., 2 f.	None.	None.
Diarrh. Dis. of Chil'n . . . . .	7—7 m., 0 f.	3—3 m., 0 f.	1—1 m., 0 f.	2—1 m., 1 f.
Influenza . . . . .	None.	None.	None.	None.

## COMPARATIVE MORTALITY IN CITY AND COUNTRY, MAY, 1892.

	In 31 Cities and Villages, Population over 2,000 each. (461,158 Inhabitants.)	In Cities, Villages and Towns, Population less than 2,000 each. (840,668 Inhabitants.)
	Deaths to 1,000 Living.	Deaths to 1,000 Living.
Total Deaths.		
From all causes . . . . .	556—302 m., 254 f.	14.67
Tuberculosis . . . . .	65—32 m., 33 f.	1.71
Diphtheria . . . . .	25—12 m., 13 f.	.68
Croup . . . . .	2—1 m., 1 f.	.05
Pneumonia . . . . .	68—39 m., 29 f.	1.79
Bronchitis . . . . .	34—22 m., 12 f.	.89
Enteric Fever . . . . .	6—4 m., 2 f.	.15
Scarlatina . . . . .	8—5 m., 3 f.	.21
Whooping Cough . . . . .	3—2 m., 1 f.	.07
Measles . . . . .	9—4 m., 5 f.	.23
Diarrh. Dis. of Chil'n . . . . .	13—12 m., 1 f.	.34
Influenza . . . . .	None.	
State at large . . . . .		8.03 dead to 1,000 living.
Cities of First Class . . . . .		16.56 "
Cities of Second Class . . . . .		14.96 "
Cities of Third Class . . . . .		10.71 "
Cities and Villages of Fourth Class . . . . .		9.25 "
Cities, Villages and Towns of Fifth . . . . .		4.36 "

## SMALL-POX. (VARIOLA.)

---

What is it? How to escape it? How to control it?

It is a virulent and very infectious disease which, before the discovery of vaccination, was the most frightful and destructive pest ever known. It differs from all other plagues in prevailing at all seasons of the year, among all nations, sparing neither sex, age, or condition. Vaccination and re-vaccination have done what *inoculation* first, and *isolation* and *disinfection* afterwards, could not do—given an almost perfect protection from the disease for all who use them as experience has shown they must be used. Without them small-pox is the same pestilence as ever. Only those are safe whom vaccination guards. Seventy per cent. of the school children of this State have never been vaccinated, and children under 5 years of age are no better off. Re-vaccination is comparatively rare.

*Most of our small-pox infection comes to us in the clothing or baggage of immigrants*, sometimes, but not so often, in the persons of the victims. Small-pox is very frequently confounded with measles and chicken-pox, but a few days of isolation will clear up the difficulty and is the proper way to decide it.

*When is small-pox infectious?* Probably from the beginning of the fever, three days before the eruption, but certainly when the eruption appears, and until the last signs of it—the scabs—disappear.

*How is it spread?* Often a single and momentary exposure to the infection of the sick room is enough. The dead body is infectious, and the clothing, bedding and the like will retain the virus, in a dry and dark place, for months. The same is true of carpets, floors and the walls of rooms, for the disease has spread in this way, and repeatedly, in our State. From a single case in Wadena, a few years ago, the infection was carried, by persons not sick when they left Wadena, to another Minnesota town, to Winnipeg and to the Yellowstone. *It will be easily understood therefore how important is the promptest isolation of persons, clothing and baggage reasonably suspected of the infection.*

Boards of Health are not omniscient, and every citizen and parent should report to them, in person or by messenger, any rumor, or fact, of the disease that comes to them. But do not wait a moment to insist that suspected persons keep isolated till the Board have acted, for much danger may be saved by such action as a few determined people may take before the Board are in charge. If the Board find there has been exposure, or a reasonable probability of it, it will first secure strict isolation of persons, clothing and baggage; then the vaccination or re-vaccination of all exposed persons; then a thorough hot bath for each of them, and a boil of half an hour in water for all clothing and baggage which can be treated in that way. The vaccine will work, if at all, so as to be recognized on the 6th or 7th day when all showing it, may be discharged. Those upon whom it does not take, who have a history of the operation and good scars go out on the seventh day, while those who refuse the test must remain to the fourteenth day (the period of incubation of small-pox) and may then go.

*But if small-pox appear what then?* I. Remove the case to a separate building (if no hospital is available), and in warm weather it is better and more comfortable for the patient, to use wall tents. A nurse should be vaccinated before taking charge, and is then practically free from danger.

II. *Everything* that the patient has used should go with him, clothing, bedding, baggage, and then the room he occupied should be disinfected with steam and sulphur fumes under the direction of the Board of Health, scrubbed, whitewashed with quick-lime and thoroughly dried with free ventilation. Nothing need be destroyed except feather beds used by the patient, which it is safer to burn.

The tents occupied by the patients should be in an airy, dry and properly sheltered place away from traveled roads, near to water if possible, and every provision made for their comfort and care. There would be less difficulty in getting good nurses if people would trust their vaccination as the writer and all active Health Officers do. A recent successful vaccination or the failure of a recent use of active vaccine to take is satisfactory proof of safety.

*But what is vaccine?* It is the virus of a peculiar affection of cattle, which if carefully cultivated on young and healthy calves, can be used with perfect safety upon man. It is carefully collected on ivory points in sterile glass tubes and in other ways, and so preserved for distribution and use. Vaccination is the insertion of this virus by minute punctures, or scratches into the skin. Five little punctures result, after four days, in the formation of as many little vesicles which on a healthy infant look "like pearls on a rose leaf," by the day week, gradually dry up to crusts which fall off in due time leaving little peculiarly pitted scars proof of the character of the operation.

*When should vaccination be done? When repeated?* After the third month of age is the best time, as infants suffer least of all from the operation. All others who have never been vaccinated should immediately get it. Five insertions give the greatest security with no additional trouble. Re-vaccination should be done after puberty, and any time when one is directly exposed to the infection of small-pox.

*Is vaccination a protection against small-pox?* Yes if the vaccine is pure and fresh, and if it is used as above directed. The writer has been directly and repeatedly exposed to small-pox in more than forty distinct outbreaks, and has been re-vaccinated many times, yet the vaccine has never taken again since childhood, nor has any one of the re-vaccinations ever produced other than trifling effect.

*Where can pure, fresh and reliable vaccine be obtained?* At the Station of this Board, where, after a careful study of the methods of selecting, cultivating, preserving and using of vaccine in Europe and this country, we are cultivating the best virus upon healthy nursing calves. It has been tested with the greatest care in over 2,000 cases, with the typical results.

The object in view is to supply vaccine virus of the greatest purity and efficiency by the most careful selection of healthy calves who are tested as to healthfulness in every practicable way; their vaccination is done with every safeguard; they are watched and have every attention till the vaccine is ready for removal; it is taken with all tested precautions, and as carefully sealed up for distribution. A report of its operation is required of all to whom it is sent, so that the slightest variation from its normal operation can be immediately investigated with samples always reserved for the purpose. It is now nearly two years and not a complaint has come back with the reports of its use. The State Board of Health in this way has removed the last objection to the use of healthy vaccine, and relies upon the hearty co-operation of the people of the State to restore the practice to its old time frequency and value.

June 25, 1892.

C. N. H.

# PUBLIC HEALTH IN MINNESOTA.

CHARLES N. HEWITT, M. D., Editor.

OFFICIAL PUBLICATION OF THE STATE BOARD OF HEALTH  
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A SIATIC CHOLERA is making faster than usual time in spreading over Russia, and is causing great mortality there. For several weeks so-called "Cholera nostras" has been causing many deaths in some of the suburbs of Paris. The usual plea, "dirty Seine water," has been made and discounted, and it seems to be true that it is Asiatic Cholera which they have, as has happened before. No one can tell how soon the disease will appear elsewhere in Europe but the governments are preparing as if they expected it of which see one evidence which we publish herewith—the immigrant regulations at Hamburg.

*What is our danger?* must be a perpetually recurring question. Not very great this year, perhaps, but greater next year unless the disease change its methods. It is great enough this year if it come, as it would be most likely to do, in immigrants or their baggage.

Our first and most effective barrier is the Sea-board Sanitary Service, which is now mostly in the hands of the sea-board States. As respects cholera the most important for us are the

New York station, in New York harbor, and the Grosse Island station of the Dominion Government in the St. Lawrence.

The first is under dual control practically. The immigrants first pass the inspection of the Health Officer of the Port of New York, a State officer. He is instructed to detain all cases of infectious disease, to isolate suspects if he thinks best, and to use his judgment as to the disinfection of passengers, baggage, clothing and cargo. For these purposes he has ample material in isolating stations, hospitals, and disinfecting stations and can control the movements of suspected ships.

There is no reason why this station should not be the best in the world if properly officered and permitted to do its whole duty without political interference or the obstructions caused by "the commercial interests" of the city. Further up the harbor, and just behind the great statue, "Liberty," is Ellis Island, the U. S. Immigrant Inspection station. Originally intended to prevent unworthy immigrants from landing and becoming public charges, criminals, etc., it was incidentally instructed, and in fact compelled, to look after the sick and particularly of infectious disease. Gradually a medical inspection has become part of its duties. In June of last year the suggestion was made, by the Secretary of this Board that this Service could do a very valuable work by sending immediate notice to him of all immigrants exposed to infectious disease and coming to Minnesota, this notice to give name of ship, date of arrival, name of disease, names, number, location and destination of each immigrant. Dr. Wyman, of the Marine Hospital Service, urged the plan and it was put to actual trial with the results which are published in PUBLIC HEALTH, every month, (see p. 51). The advantage of the plan is becoming more and more apparent every day, and other State Boards of Health are using it, but unless they have a direct and responsible relation to Local Boards of Health much of the advantage will be lost. In our own State it has put hundreds of local authorities on their guard, given us, all, needed "practice" in the prevention of disease rather than control of disease itself, and done much to prepare us for any infection which may come.

The second, and at times the most important, is on the St. Lawrence. This station is the most beautifully located of any of the eastern stations of this continent, the superintendent is one of the most experienced in the Sea-board Sanitary Service, and had he been permitted to do as he asked to do, would now have an equipment equal to the best, but he was not. Now it is proposed to build a deep-water pier with suitable disinfecting apparatus there, and to deal with ships and their contents as at the New Orleans stations; but this is a matter of two years work, and meantime there is no evidence, as yet, that the Dominion Government intend to give to the Provincial and State

Boards of Health the same notice which the U. S. Immigration Service do. Why not? Nobody seems to know.

A SIGNIFICANT REGULATION is reported from Hamburg, which we quote. About the same thing is done in Liverpool. There is a business necessity for cleaning out the boarding and lodging houses, and in getting every batch of immigrants on to the ships. "They better be sick there than in our boarding houses," one agent said to the writer.

"*BERLIN, Aug. 2.—The authorities at Hünburg are strictly enforcing the new regulations to prevent the introduction of epidemics. The police authorities prohibit emigrants who have taken steerage passage by the steamers leaving that port from alighting at any railroad station in the city. Emigrants are conveyed direct to the quarters near the emigrant ships and lodged in especially erected cantonments on the American quay until they embark.*"

*NOTIFICATION OF EXPECTED ARRIVAL OF IMMIGRANTS WHO HAVE BEEN EXPOSED TO INFECTIOUS DISEASES ABROAD OR ON SHIPBOARD.*

THERE is a curious misunderstanding on the part of some Health Officers and Chairmen as to the object of this notice. They seem to think it is for *statistical* purposes, or in some other way to oblige the State Board of Health, and so, in some cases, bills have been sent to the Secretary.

*The real and only motive is to give every Local Board of the smallest township as of the largest city, as early and detailed information as possible of the danger to their people of infection coming in this way—by immigrants themselves, their clothing or their baggage.*

Infection has repeatedly come to the people of this State in these ways, oftenest in baggage.

Immigrants leave New York and Boston on passenger trains, usually, 12 hours slower than the fast mail, upon which the Secretary is at present compelled to rely for *details*, though the fact of an exposure to small pox or cholera, on a given ship and date, will be hereafter immediately telegraphed to him from New York.

*I*MMIGRANT INSPECTION BY HEALTH OFFICERS, CHAIRMEN AND MEMBERS OF LOCAL BOARDS OF HEALTH is for the purpose of warding off infectious diseases from the people of the locality where the inspection is made.

As to its necessity, please read the reports under "Infectious Diseases, their Whereabouts," in this number. See the number of immigrants passing through St. Paul and Minneapolis, and the number coming to this State known to have been exposed to infectious disease at the N. Y. Quarantine. Judge for yourself if the inspection of 100 immigrants who prove to be well and safe, is not amply repaid by that knowledge alone, and by the discovery of one or two having infectious disease whom an easy isolation and disinfection prevent from infecting others.

*How should an inspection be made? First—Find the immigrant.* To do this one method applies to railroad towns, another to townships and villages off the railroads.

*Railroad towns.* The Health Officer should explain to the station master the object of the inspection—to ward off infectious diseases from the locality, and ask his co-operation to the extent of notification of the arrival of *all* immigrants. The village or city police can easily arrange to meet trains bringing passengers and co-operate in the work.

At all railroad stations except distributing points (like St. Paul and Minneapolis) immigrants are of two classes, one stopping in the place, the others to be met by friends or others and immediately conveyed with their baggage to farms in the country. This last class are much the largest.

The first, *those to stop in towns*, should be seen by the Health Officer, and such action taken as seems best. The second going into townships should simply be examined for any actually sick. It would be well if the name of the person who comes for them, and the destination of the immigrant, i.e. township and section, with number of immigrants, be taken on a postal card and mailed to the chairman of the township, if his address is known, or the Secretary. Often the driver can be trusted to carry the notification to the nearest supervisor.

In these cases, even if the immigrant is sick, he may be permitted to go, but if his *disease is infectious*, a special messenger should be sent to isolate the patient and deliver at destination, to the chairman of the township. This Board will be responsible for the compensation of such messenger (not to exceed \$2.00,) when ordered from this office.

The Health Officer can easily train a policeman to make routine inspection, but should always be called to any found sick and to those who have been reported from this office. The inspection occurs only on the arrival of passenger trains.

Some Local Boards report *no arrivals*, which usually means they will find, that a proper "look out" has not been kept. Some immigrants will be induced to go elsewhere by agents who meet them on the way, but a large proportion, going to friends or employers in the farming districts, are sure to come.

The "*out-look*" for townships off the line of railroads must be kept by the three members of the Board and the town clerk. Thus four officers usually living in different parts of the township have little difficulty in knowing of new arrivals and in keeping them under sufficient observation to detect any sickness among them. The Chairman is the acting Health Officer, who will report anything suspicious to the Secretary, *after isolating the persons and baggage suspected*.

One rule is wise and should be enforced: that all immigrants, immediately on arrival, be isolated till they have taken hot baths *all over*, and boiled their clothing and baggage, so far as possible, in water, and till all things, trunks included, have long exposure (at least a day) to fresh air and sunlight.

This is not only the proper thing to do on the score of decency and cleanliness, but it removes the greatest source of danger to others.

All persons who are *known to have been exposed* to infectious diseases should remain under observation for two weeks, after observing the above rule, that is they should be so located that any sickness occurring in that time should be immediately known to the Local Board of Health, as, except for special reasons, isolation and "placarding" are not required.

*INFECTIOUS DISEASES OF MAN.*

## NOTIFICATION OF INFECTIOUS DISEASES, JUNE AND JULY, 1892.

	JUNE.	JULY.
Diphtheria .....	92 cases, 23 deaths.	61 cases, 8 deaths
Scarlatina .....	121 cases, 14 deaths.	52 cases, 8 death
In St. Paul and Minneapolis of above—		
Diphtheria .....	28 cases, 4 deaths	22 cases, 5 deaths
Scarlatina .....	85 cases, 8 deaths.	45 cases, 7 deaths

*INFECTIOUS DISEASES OF DOMESTIC ANIMALS.*

## Glanders— JUNE AND JULY, 1892.

Remaining on hand, June 1 .....	18	Killed during the month.....	13
Reported during the month.....	18	Released during the month .....	2
		Remaining isolated July 1, 21.	
Most of them "suspects" under observation.			
Remaining on hand, July 1 .....	21	Killed during the month.....	7
Reported during the month.....	11	Released during the month.....	0
		Remaining isolated Aug. 1, 25.	
Most of them "suspects" under observation.			

**L**UMPY JAW (ACTINOMYCOSIS) is again attracting attention, this time because Prof. Thomassen, of Utrecht, endorsed by Prof. Nocard, of Alfort, and other continental experimenters, declares that he has discovered a sure and easy cure. Some mystery is made of the repetition being made of these experiments in this country, but there is no occasion for it, as any intelligent stock-breeder may make the trial for himself at little expense. By the time the medicine is used 8 days improvement should begin and the swelling get smaller.

After the eighth day get the same mixture and give half an ounce of it daily till well.

Iodide of potash (best)  $3\frac{1}{2}$  ounces. Water, 8 ounces.

An ounce is a dose; add it to a pint of water, stir that into a bran mash.

Give a dose once a day, or better begin with half twice a day, in a feed of bran.

Such are the directions of the discoverer, and they may be safely followed by any owner of an animal with this disease.

The writer knows nothing of the truth of the claim, but deems it worth trial, asking all who use it to report results.

Isolate the animal, giving abundant food. If the sore is discharging, keep it clean with this solution:

Boric acid, 4 ounces. Boiled water—a gallon.

Mix and use a teaecupful or so, to wash the wound if it is offensive.

Arrrangements are making to try the method if enough cattle, having the disease, can be gotten together within easy reach of this office. C. N. H.

*INFECTIOUS DISEASES—THEIR WHEREABOUTS.*

(Our office register is a large map showing every township, borough, village, and city. Infectious diseases are recorded by colored pins as soon as reported and this mark is not removed till the outbreak is officially reported to have ceased, and disinfection done.)

MINNESOTA.—Diphtheria during June invaded 21 localities in 16 counties, 1 locality in 11 counties, and 5 in 2.

*During July*, 14 localities in 9 counties, 1 locality in 6 counties, 2 in 1 and 3 in 2.

*Scarlatina during June* invaded 13 localities in 10 counties, 1 locality in 1 county, 3 in 2.

*In July*, 7 localities in 7 counties.

WISCONSIN reports, July 26, child with small pox at Milwaukee, an immigrant from Germany, arrived July 23, removed to hospital, ear and baggage fumigated. All the immigrants except child had certificates of vaccination, and Health Commissioner of Milwaukee reports that none of the immigrants are coming to Minnesota.

MICHIGAN reports, July 21, case "sporadic cholera," at Detroit, "in immigrant from Glasgow; went into country July 17, taken sick on return and died July 19. Clothing disinfected with carb. sub., and cavities of body with same. It may have been cholera morbus." No doubt it was.

NEW YORK CITY—*Typhus Fever* has been constantly in the city since its first appearance in February last. To July 16, nearly 200 cases in 15 of the 24 wards of the city.

NEW YORK QUARANTINE—3 cases on S. S. "Nevada," which arrived July 14, detained at hospital. One case on "S. S. Rugia," July 24, "detained at quarantine and all baggage received steam fumigation."

PENNSYLVANIA reports, July 5, 7 cases small pox at Condersport; 1 at Mill Creek. Origin, 6 cases from first case at Condersport, 1 fatal; 1 case varioloid at Garland, Warren county. July 11, reports 2 cases small pox at Philadelphia, 2 immigrants from S. S. Indiana. July 27, 1 case small pox at Pittsburgh, name or origin not known. Isolation and disinfection.

ONTARIO reports, July 25, 1 case small pox at Port Arthur, in District Algona, a passenger from British Columbia. Origin, previous infection in British Columbia.

NORTH DAKOTA reports, July 30, "numerous cases of small pox at Gretua and other towns in Manitoba, near the boundary line. North Dakota has proclaimed absolute quarantine against Manitoba. Origin, Chinese immigration."

Aug. 8, Dr. Patterson, Acting Health Officer, Province of Manitoba, writes: "Ten cases in all, 8 in 1 locality and 1 each in 2 others; 3 deaths; others convalescent. No more cases in last 10 days. North Dakota quarantine raised."

There has not been found to date (Aug. 11) any occasion for alarm, inneh less panic, in Minnesota. Neither the State or Local Boards have demanded any interruption of railroad travel, but all Local Boards, in any way exposed, have been put on their guard, supplied with vaccine for suspected persons, and have been in constant communication with this office.

*Reports of U. S. Commissioners of Immigration from the sea-ports specified, for the month of July, 1892.*

(These reports, giving name, number and destination in Minnesota are made up immediately from the books of the commissioners and forwarded to

the Secretary, who promptly notifies the chairmen and Health Officers interested, by telegraph or mail as occasion requires.)

Number of reports received from U. S. Commissioners of Immigration during July, 1892.....	14
Number of suspected immigrants reported .....	632

Details as follows:

FROM NEW YORK HARBOR.

Immigrants exposed to measles.....	264
" " measles and scarlatina.....	270
" " measles and typhus.....	35
" " small pox .....	41
" " typhus.....	22

The immigrants went to 112 different places in the State; 179 separate lists were sent out by the Secretary to the Local Boards of Health.

Below find total of immigrants who have arrived at Union Station, Minneapolis, for month ending July 31, 1892:

From Sweden.....	483	Norway.....	516	Denmark.....	39
" Germany .....	178	Others.....	233		

Totals, 1438   Males 796   Females, 642   For Minn. 1072
--

Frans Oscar Samuelson, from Sweden, 17 years old, was very sick on arrival. He was seen by Drs. Kelly and Norton, who said the sickness was not contagious, and advised to send him on to destination, Balaton, S. D.

JOHN R. GROETTUM, Em. Agent.

*MINNESOTA WEATHER SERVICE.—REPORT FOR JUNE, '92.*

FURNISHED BY MINNESOTA STATE WEATHER SERVICE, J. H. HARMON, DIRECTOR.

ATMOSPHERIC PRESSURE—IN INCHES—Monthly mean for State, 29.92; maximum observed 30.29, at Alma City, on the 25th; minimum observed, 29.38, at Moorhead, on the 11th; range, 0.91.

TEMPERATURE, DEG. F.—Monthly mean for State, 63.6; monthly mean for northern section, 60.7; monthly mean for central section, 62.9; monthly mean for southern section, 65.0; highest monthly mean, 67.7, at Wabasha (for 22 days); lowest monthly mean, 56.2, at Duluth, maximum observed, 94, at Cambridge, on the 11th; Grand Meadow, Jackson on the 2d; minimum observed, 30, at Pokegama Falls, on the 2d; range for State, 64; mean maximum for State, 73.6; mean minimum for State, 53.7; greatest local monthly range, 58, at Pokegama Falls; least local monthly range, 31, at Pine River Dam and Fergus Falls; greatest daily range, 41, at St. Vincent, on the 14th; least daily range, 3, at Duluth on the 7th.

PRECIPITATION—IN INCHES.—Average for State, 5.00; average for northern section, 2.43; average for central section, 3.77; average for southern section, 6.45; greatest amount, 11.48, at Grand Meadow; least amount, 1.32, at Lake Winnibigoshish Dam.

WIND.—Prevailing direction, southeast.

FORECASTS.—According to the reports of displaymen, the weather bureau forecasts during the month, for Minnesota, were verified as follows: Weather, 79.3; temperature, 80.6; weather and temperature combined, 79.8.

**DISTRIBUTION AND MORTALITY OF THE MORE IMPORTANT DISEASES IN MINNESOTA in June, 1892, (from returns of 737 localities, received up to July 24, 1892.)**

POPULATION. (CENSUS OF 1890.)

STATE.....	1,801,826
1. First Class (cities of over 100,000), St. Paul and Minneapolis.....	297,894
2. Second Class (cities of between 15,000 and 50,000), Duluth and Winona .....	51,323
3. Third Class (cities of between 5,000 and 15,000), Stillwater, St. Cloud, Mankato, Faribault, Red Wing, Brainerd and Rochester.....	51,622
4. Fourth Class (20 cities and villages of over 2,000 and less than 5,000 population) ..	80,319
5. Fifth Class (cities, villages and townships, population less than 2,000).....	840,668

The following tables are founded on 702 deaths in June.

MORTALITY IN STATE.—JUNE.				Average of 5 years.	
Total June, 1892.	Localities Invaded	Counties Invaded	No. of Cases.	June.	Ann'l Rate per 1,000 Living
From all causes..... 702—406 m., 295 f.			761.2		7.11
Tuberculosis..... 83—34 m., 49 f.	37	28	89.3 (av. 3 yrs)	.83	
Diphtheria..... 18—12 m., 6 f.	9	8	31.	.29	
Croup..... 2—1 m., 1 f.	1	1	5.8	.05	
Pneumonia..... 41—26 m., 18 f.	16	13	42.8	.4	
Bronchitis..... 22—14 m., 8 f.	9	9	18.75(av. 4 yrs.)	.18	
Enteric Fever..... 9—5 m., 4 f.	5	5	15.4	.14	
Scarlatina..... 21—9 m., 12 f.	12	10	15.4	.14	
Whooping Cough..... 10—6 m., 4 f.	9	8	8. (av. 2 yrs.)	.07	
Measles..... 7—4 m., 3 f.	5	5	13.2	.12	
Diarrh. Dis. of Chil'n..... 16—10 m., 6 f.	8	8	39.4	.37	
Influenza..... 3—1 m., 2 f.	1	1	7.6 (av. 3 yrs.)	.07.	

MORTALITY BY CLASSES. (See population above.)

1—First Class.	2—Second Class.	3—Third Class.	4—Fourth Class.
From all causes..... 324—183 m., 141 f.	49—30 m., 19 f.	20—15 m., 5 f.	56—22 m., 31 f.
Tuberculosis..... 31—12 m., 19 f.	6—3 m., 3 f.	3—1 m., 2 f.	9—4 m., 5 f.
Diphtheria..... 4—2 m., 2 f.	None.	None.	7—3 m., 4 f.
Croup..... 2—1 m., 1 f.	None.	None.	None.
Pneumonia..... 23—19 m., 9 f.	None.	3—3 m., 0 f.	1—0 m., 1 f.
Bronchitis..... 14—9 m., 5 f.	2—1 m., 1 f.	None.	2—0 m., 2 f.
Enteric Fever..... 6—4 m., 2 f.	None.	None.	None.
Scarlatina..... 8—5 m., 3 f.	1—0 m., 1 f.	None.	None.
Whooping Cough..... 3—2 m., 1 f.	None.	None.	None.
Measles..... 3—2 m., 1 f.	1—0 m., 1 f.	None.	None.
Diarrh. Dis. of Chil'n..... 10—6 m., 4 f.	1—1 m., 0 f.	None.	None.
Influenza..... 2—1 m., 1 f.	None.	None.	1—0 m., 1 f.

COMPARATIVE MORTALITY IN CITY AND COUNTRY, JUNE, 1892.

In 31 Cities and Villages, Population over 2,000 each. (461,158 Inhabitants.)	Deaths to 1,000 Living.		In Cities, Villages and Towns, Population less than 2,000 each. (840,668 Inhabitants.)
	Total Deaths.	Deaths to 1,000 Living.	
From all causes..... 449—250 m., 199 f.	11.85	253—156 m., 97 f.	3.64
Tuberculosis..... 49—26 m., 29 f.	1.29	34—14 m., 20 f.	.49
Diphtheria..... 11—5 m., 6 f.	.29	7—7 m., 0 f.	.1
Croup..... 2—1 m., 1 f.	.05	None.	None
Pneumonia..... 32—22 m., 10 f.	.84	12—1 m., 8 f.	.17
Bronchitis..... 18—10 m., 8 f.	.47	4—1 m., 0 f.	.06
Enteric Fever..... 6—4 m., 2 f.	.16	3—1 m., 2 f.	.01
Scarlatina..... 9—5 m., 4 f.	.24	12—1 m., 8 f.	.17
Whooping Cough..... 3—2 m., 1 f.	.08	7—4 m., 3 f.	.1
Measles..... 4—2 m., 2 f.	.11	3—2 m., 1 f.	.04
Diarrh. Dis. of Chil'n..... 11—7 m., 4 f.	.29	5—3 m., 2 f.	.07
Influenza..... 3—1 m., 2 f.	.08	None.	None.

Dead to 1,000 living.

†State at large.....	6.56	8.89
Cities of First Class.....	13.11	13.41
Cities of Second Class.....	11.31	11.61
*Cities of Third Class.....	4.71	5.3
Cities and Villages of Fourth Class.....	11.31	11.31
{ †C., V. and T. of Fifth Class.....	3.64	6.16

{ 737 Cities, Villages and towns reported for June.

† Actual population accounted for, 960,335.

\* Brainerd not reported.

‡ Population 499,177.

Corrected to actual population  
for which deaths have been rep't'd

## LEPROSY IN MINNESOTA.

REVISED TO AUGUST 1, 1892.

BY CHR. GRONVOLD, M. D.

This report by the Committee on Leprosy of the State Board of Health of Minnesota came too late for presentation to the late Congress of Hygiene (1891) in London, and was published in the London Lancet with this note by the Secretary. "The report relates in very conservative language the experience we have had for the last forty years with leprosy in Minnesota. In no other State that I know of are all known lepers registered and kept under observation, and all suspected cases carefully examined. The history of these cases has been very thoroughly studied. No further isolation than the use of their own beds and utensils is required, and this their own good sense and that of their relatives, as a rule, secures. It must be understood that the State Board of Health and the Local Boards have abundant power to enforce the strictest isolation, if found needful; but up to date there has not been any occasion for the use of such power, as the disease is limited to the immigrants, and has never appeared in the descendants of lepers, nor in anyone born in the State. It is under constant and careful observation, and has been for the last eighteen years under the care of the State Board of Health. The facts here officially stated will interest the students of a disease about which a good deal more has been written than is actually known."

C. N. H.

NORWEGIANS began immigrating to America more than fifty years ago, most of them going to the northwestern States, Wisconsin, Iowa and Minnesota—where they and their descendants form a considerable part, of the population. Some of these immigrants were from parts of Norway where leprosy is endemic, and among them were some lepers. Norwegian physicians, aware of this fact, followed, to study the disease on foreign ground. Among them were Dr. J. H. Holmboe, surgeon in charge of a leper hospital in Bergen. He came in 1864, and found twelve lepers, of whom two had the first symptoms after their arrival here. He thought their health better, probably, than it would have been had they remained in the old home. In 1869-70, Prof. Wm. Boeck, of Christiania, Norway, (joint author with Dr. Danielsen of Bergen of "Traite de la Spedalskhet ou Elephantiasis des Grecs, Paris, 1848," published by the Norwegian Government) published his conclusions in *Nordisk Medicin. Archiv.*, Band iii., No. 1. He found in the three States named eighteen cases of leprosy, of which nine had the first symptoms after their arrival in this country. All were proved to come from leprous families in the old country, except one, in which he suspected hereditary influence, although admitting the possibility of contagion. He ascribes all the cases to heredity, not believing the disease contagious. He thought lepers better off here in respect of their disease than they would have been in their own country. He says: "They have come away from the place, where we see leprosy may originate spontaneously, and which certainly will favor its development when the disposition is inherited. They have settled on fertile lands, where they certainly have to work hard to make a living, but they generally undergo no hardships, as we in Norway understand the term. There is no work that can be compared with that done at the midwinter fisheries in open sea off the Finmark coast, or the hardships suffered, while tending the cattle on the high mountain plateaux, which causes so often bring out the latent leprosy."

Since 1870, when the above was written, investigations have been continued in Minnesota as to the number of lepers, their condition, and that of their families. There are medical correspondents everywhere in the State, who report all suspected cases to the State Board of Health, which then makes particular inquiries through its standing committee on leprosy, composed, since 1872, of the writer, and the Secretary of the Board. At this date, July 20, 1892,) there are sixteen lepers known to live in Minnesota, of whom nine have the anaesthetic and seven the tubercular form of the disease.

*Anesthetic cases*—In one the disease was first recognized at least five years ago; its duration in the other nine averages nineteen years. The two oldest of this class are, respectively, seventy and seventy-four years of age, and have had the disease more than twenty-three and seventeen years respectively; while two others, sixty and fifty years of age, have had the disease thirty and thirty-two years.

*Tuberculous cases*—The average duration of the disease in these cases to date is eight years, while in one the disease was first recognized a year ago. The longest duration of the disease in these cases is sixteen and fourteen years, in persons forty and thirty-six years old.

The experience in this country has not been very long, although it already includes several generations. Such as it is, some of its results are: 1. In no children or descendants born in Minnesota of lepers—there are great-grandchildren—has there been any sign of the disease discovered, although under frequent observation. 2. Up to date no leper has been born in Minnesota. 3. In many cases the disease was not recognized for a long time after the arrival of the persons affected in this country—how long it is difficult to state, as the first symptoms are obscure, not noticed, or misunderstood; but in every single instance the leper has some time had his home in some place in the old country, where the disease was endemic, while in but a single case has infection in this country been suggested, but as that came from a locality in the old country, that has been for years a nest of leprosy, the possibility is that he got it there. These facts, as far as they go, seem to suggest, that the disease in this country is not so easily acquired as in some other countries. Looking for the cause, some points presents themselves for consideration.

1. New houses with new furniture and furnishings, in a new country, harbor no sources of infection, and the better economical condition promotes the sense of need for cleanliness, both for health and comfort—a cleanliness which seems in leprosy to be the main reliance against contagion. 2. The commonly dry and always windy climate of this great inland plateau, with its great and sudden changes of temperature, open as it is towards the Gulf of Mexico, and towards the North Pole, may perhaps make it more difficult for the *materia peccans* to fix itself on persons and things. The hot summer that opens up the pores of the skin and drains the system that way, and the cold, stormy winters acting on the body somewhat differently, may have influence in that direction. That the climate must have some influence in preventing the spread of the disease, seems yet more probable, when we remember, that the early settlers, often with a large family of children, lived for a long time in small, close, and badly ventilated log houses, closer, even, than they were accustomed to in their old homes. Even if they did not bring with them such sources of contagion as unclean houses, and old furniture, they at least had for some time old clothes, so that it would be a wonder, if old and young could have observed the cleanliness necessary to prevent contagion if the effect of climate had not been of a nature to make contagion more difficult. It seems certain, that the disease, once established, runs its regular course here as elsewhere, perhaps a little slower. 3. The change in the physical constitution of people, who have lived here some time, the effect of acclimatisation and of other influences, may make the individual less susceptible to contagion. In 1888, Dr. G. Armauer Hansen, of Bergen, Norway, the discoverer of the bacillus lepræ, came to this country to study leprosy in the immigrated Norwegians and their descendants. He had taken the position in 1874 that contagion is the only source at present of leprosy, and that the disease is not hereditary. He gives the results of his investigations.<sup>†</sup>

"I cannot here relate all my observations in detail. I will only tell what I have found in regard to the occurrence, or rather the disappearance, of leprosy in America (N. W. States). Of about 160 lepers who have immigrated into the three States named (Wisconsin, Iowa, Minnesota), thirteen are alive, whom I have seen myself, and perhaps three or four more. All the others are dead. Of all the descendants of lepers (and that includes the great-grandchildren of some of them), not a single one has become leprosy. This is, in short, the result of my investigation."

<sup>†</sup> Virchow's Archiv, Band, cxiv., 1888.

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# MEASLES.

(RUBEOLA.)

PARENTS, and particularly mothers, are requested to read this little paper carefully to learn how they may save their own and other children from needless sickness, possibly deformity and death, by co-operation with the Local Board of Health in the control of Measles, as of other infectious disease.

*What is it?* It is one of the eruptive fevers usually recognized by its peculiar "catarrhal" symptoms and characteristic "rash." It has been confounded with the first stages of small pox and scarlet fever but this may be avoided by isolating the patient for two or three days, when the fact will be apparent.

*Its specific poison* or infection is produced in the rash, which contrary to common opinion, invades the membranes of the nose, throat, lungs and bowels before, and often more severely, than the skin. It escapes first in their secretions, and afterwards from the eruption on the skin. The first is the most virulent and abundant, and most difficult to control; the last is the least virulent and most readily destroyed.

*But is it worth while to attempt to restrict or control measles?* Most people and many physicians, advise "that children be permitted to catch the disease and be through with it, as the risk is slight and the mortality trifling." The time has passed to advocate the "catching" of any disease and as to the danger and mortality of measles let the following facts drawn from our records of the last five years answer. Total deaths from measles in that time in Minnesota, 850, an annual average of 171. 1.2% of total deaths from all causes, or 131 deaths to 1,000,000 living.

In the mortality of the last five years 74.12% were children under 5 years of age, and more than half (52.35%) under 2 years of age. Neither diphtheria or scarlet fever cause so great proportionate mortality under 2 and 5 years of age, as does measles.

*Seasonal mortality.* 45.29% occurred in spring; 25.46% in summer; 20.59% in winter, and 7.64% in autumn.

It is a great mistake to say that the mortality after Measles is due rather to complications than to the disease itself. The most common are affections of the lungs and bowels, and are but exaggerations of the usual conditions of the disease, the severity of the attack being expended on the mucous membranes instead of on the skin. In the great majority of cases the disease is sufficient to account for the death, without calling any other cause. As to the "sequæ," as they are called, those affections which so often follow directly in the wake of measles: sore throat, nose, eyes and ears, scrofula, dropsy and other affections, there is no dispute as to their frequency, severity and importance. Now comes another objection. "But it is easier borne in infancy and childhood than by older people and it cannot be prevented anyway." To that the reply is this: The mortality and disability following the disease justify an effort which has repeatedly, and recently, been very successful. In England, where the mortality is greater than from either scarlatina or diphtheria, obligatory notification and isolation, have worked very important reductions in both sickness and death rate where enforced. So they have in our own State. It is our duty to make the attempt more general.

*What to do to prevent or restrict measles.* Mothers can do more than any one else because they see the first symptoms and can isolate a child promptly who is suspected of the disease. It is often a question to mother and physician whether a rash is that of scarlatina, measles, or some less important skin affection. The safety of the child, in any event, is best assured, by sending it to bed, or by a few days isolation. A day or two of quiet, and a hot bath will settle the question, and if either of the diseases is found, early care promotes the safety and recovery of the sick, and at the same time the safety of other children in the family, the neighborhood, and particularly in the school, which the children of the family attend. This education of mothers is the first and most important duty of the Local Boards of Health as respects the management of all infectious disease.

*Next in importance is the co-operation of the school teachers,* whom supply with this and all other circulars. When measles, or other infectious disease appears, notify them immediately of their duty to co-operate (see Chap. 132, Laws of 1883)\* and give the name and address of affected families, with request to exclude all children from such families or who visit them. Teachers should notify the Local Board of Health of children sent home from school who are too unwell to study, and should not permit a child with fever, hoarse or croupy cough, or well marked eruption on skin, to remain at school without the permission of the Board of Health.

*Houses in which are the sick of measles* or other infectious disease, should be placarded, the children restricted to the home, and no visiting permitted. The men of the family doing outside work, and not attending the sick, may go to work as the danger from clothing infected with this disease is not great in the open, away from children. New cases in the family of the first case will develop, if at all, by the tenth or twelfth day. If they do not, hot baths for all, with boiling water for infected clothing and bedding, and a thorough scrubbing of room and furniture will clear the record and remove occasion for further isolation. Patients to be isolated till "rash," "scurf" and "cough" have disappeared—from fourteen to twenty-eight days.

*Care of the sick of measles.* Put in a quiet clean, well ventilated and isolated room with the least furniture, carpets, etc., consistent with comfort. The nurse should wear an apron large enough to cover from neck to wrists and feet, while on duty and take other reasonable precautions. The well children should be kept as far from the sick as possible, in another building, if practicable.

*Thorough anointing* all over with simple ointment (one part mutton tallow or white wax, and two parts fresh lard melted separately and stirred till cold) will do much to keep the virus of the rash, on the skin or in the underclothing. All discharges from mouth, nose, or eyes, should be collected on rags and burned, or on handkerchiefs or towels and immediately put in hot water and boiled. Discharges from the bowels should be into a vessel containing a cupful of fresh lime water.<sup>†</sup>

These attentions and precautions, easy to take and simple to use, will reduce the chances of the spread of measles from a given case, or family, to small proportions, particularly among the very young where it finds the most of its victims. In no one of the infectious diseases is the co-operation of mothers more important, and in none will it be so promptly given when they come to know the truth of the matter as here stated.

C. N. H.

\* SEC. 28. That no principal, superintendent or teacher of any school, and no parent, master, or guardian of any child or minor, having the power and authority to prevent, shall permit any child or minor having scarlet fever, diphtheria, small pox or any dangerous, infections or contagious disease, or any child residing in any house in which any such disease exists, or has recently existed, to attend any public or private school until the Board of Health of the town, village, borough, or city, shall have given its permission therefor; nor in any manner to be unnecessarily exposed, or to needlessly expose any other person to the taking or to the infection of any contagious disease.

<sup>†</sup> LIME WATER is the clear solution of quick-lime. Take best quick-lime in lumps, put in a pail, pour on one-third as much of water, cover closely and slack till it is a fine powder or creamy fluid; one part of this to three of water will make a saturated solution. Add water in that proportion to the mixture, stir well and then pour on half a tea cup of kerosene, which will protect it from the air and preserve its strength. Use the solution as needed, and the solid matter, mixed with more water, can be used for whitewash or thrown into the sewer or ont house.

# PUBLIC HEALTH IN MINNESOTA.

CHARLES N. HEWITT, M. D., Editor.

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## PROCLAMATION.

STATE OF MINNESOTA,  
EXECUTIVE DEPARTMENT. }

Whereas it has been officially declared that cholera is prevalent in various portions of Europe and the immigrants from the infected districts have introduced this terrible disease in this county.

And Whereas, if said infectious disease should become deseminated among people it would probably result in great loss of life and be a menace to the business interests of the State,

And Whereas, the State Board of Health has adopted a plan for the inspection of all immigrants coming into or going through this State, and has notified all municipal authorities of the cities, villages and towns of this State of the necessity of rigid sanitary regulations.

Now Therefore, I, William R. Merriam, Governor of the State of Minnesota, by virtue of the premises aforesaid and pursuant to the authority in me vested by the constitution and laws of the State, do hereby call upon and request the municipal authorities of the cities, villages and towns of this State to place their respective localities in a state of sanitary defense, and I appeal to all the citizens of this State to yield cheerful obedience to the proper health officers and lend active aid in enforcing the same.

And I hereby notify the different Trunk Lines of Railway that enter this

State that the State Board of Health has inaugurated a system of sanitary inspection of immigrants; and now appeal to the railway officials to aid and encourage the board in carrying out the system thus adopted.

In Witness, whereof, I have hereunto set my hand and caused to be affixed the Great Seal of the State of Minnesota, at the Capitol in the City of St. Paul this eighth day of September, A. D., 1892.

[L. S.]

W. R. MERRIAM,  
Governor,

By the Governor

F. P. BROWN,  
Secretary of State.

**W**HAT ABOUT CHOLERA? At the date of this writing, September 13, cholera exists in nearly every European sea-port from which immigrants are shipped to this country, and is at the Quarantine Station in New York Harbor. There have been no cases outside of that station, in this country.

The most impracticable projects have been suggested to the National authorities, among them that of "a proclamation of absolute quarantine against immigration," by the President, and our State Board of Health has been invited to join in urging it. The writer suggested, instead, that the restrictions on immigration be severe enough for our own protection, and that they must, for that purpose, be such that S. S. companies, finding little profit in the business, would bring but few immigrants, and they would come through established and well guarded channels, and so be under observation at the seaboard.

This is what has actually been done by the State sea-coast sanitary authorities since Sept 1, with whom the U. S. authorities are co-operating, and the restrictions are such that immigration will be speedily reduced to a minimum from all European ports, and be stopped entirely from such as are infected.

*Absolute quarantine* (which here means entire exclusion of all immigrants from the United States), even if practicable or legal, which it is not, would operate (as does absolute exclusion of goods for every-day use,) to produce smuggling through Canada, and our own out of the way but possible ports, a blockade running with human cargoes, and a great increase of the danger of importing contagion. It is wisest and best, for these and other reasons, to permit immigration *but under such restraints as shall best protect ourselves*, with the least delay to

newcomers, or burden on commerce, consistent with such protection. The same restrictions should apply to suspected cargoes and to the clothing and baggage of suspected immigrants.

The following plan has been steadily supported by the State Board of Health of Minnesota for years and as relates to methods at ports of embarkation and debarkation was submitted to English and Canadian seaboard authorities in 1889 and 1891, and to the quarantine office in New York Harbor last March.

*Before embarking:* 1st, a clean bill of health, clean clothes and enforced baths for all immigrants, with vaccination; steam and hot air disinfection for all baggage, before persons or baggage are permitted to go aboard ship at foreign ports. This to be done to the satisfaction of responsible medical men attached to the U. S. Consular Service in all ports from which emigrants are permitted to come. These ports should be named by the U. S. authority, and immigration from all others discouraged.

2d—*That all steamships currying immigrants be required to have on board, and in working order, a steam disinfecting chamber, in which steam and hot air blasts can be used, and in which all baggage and other suspected things, which can be so treated, and which have escaped such treatment on shore, may be disinfected. In them, also, all baggage or other things becoming infected on board are to be treated as above. That each steamship have a proper hospital for the care of cases of sickness, and that the surgeon be required to keep exact record of all cases of diarrhoea, dysentery, cholera, or other infectious diseases, and to enforce the isolation of persons suffering from such diseases to prevent the spread of contagion. Also that said surgeon be required to present in writing a full and truthful description of all facts and occurrences during the voyage which have any possible bearing upon the presence of infectious disease, quarantine officer of the port of entry.*

3d—*At ports of arrival in this country, all ships from infected ports, or from other ports, which bring passengers, baggage or cargo coming from infected ports, be treated as follows: All immigrants and all other passengers suspect in the opinion of the Health Officer, after examination by him, to be landed at a proper place, and to be required to take baths and have their clothing and baggage disinfected by steam and hot air. That all suspected cargo, particularly rags, be submitted to same disinfection. That all bedding (including pillows, mattresses, sheets, etc.,) be removed as "suspected," and be disinfected as above. The ship then to be disinfected by sulphurous acid gas and bi-chloride of mercury solution, and then be permitted to go to her dock. All passengers removed and treated as above to be isolated for the incubation period of the disease in question, when all who are free from disease and apparently well, may be permitted to go with their baggage.*

4th—*Each person, or family, to receive a certificate of the above facts from the sea-board quarantine authority, and that all their baggage be tagged with a similar certificate, said immigrants to be refused railroad transportation unless having such certificate, and to be transported in separate cars at the rear of trains, and isolated from all other passengers; their baggage if accompanied by above tag, to be transported in separate baggage cars, with said immigrants, and to be undisturbed except at distributing points. (The names and local destination of such passengers to be notified as soon as known, to the Secretary of the Board of Health of the State in which said localities are.)*

The State Board of Health of Minnesota has adopted this plan, and is now engaged in perfecting the details and securing the co-operation of other State Boards of Health between us and the sea-board.

These regulations, thoroughly and impartially enforced, and with such further details as local circumstances may require are the best possible for the seacoast sanitary bar to the admission of cholera. This work is the conjoined duty of the seacoast sanitary service of the seaboard States aided by the National Authorities.

The best Seaboard Sanitary Service which science and experience can devise, would be still a good way from perfection, and the varied and persistent attacks of the infection of cholera or other infectious diseases would sooner or later break through, but such a service would ward off the great majority of such attacks and be able to give notice to the inland Boards of Health of the date of the arrival of suspected or infected ships, and in addition, the names and local destination of their passengers. This notice is already given at the suggestion of this office by the Immigration Bureau of the United States in New York and Boston since June 1, 1891, and is working very well in Minnesota, where it is constantly being improved upon (see report under "Infectious diseases their whereabouts.")

The next step against infection from the seaboard is the inspection of immigrants en route on the great trunk lines, who have passed the seaboard inspection. This Board has such an inspection by competent physicians and hopes to secure the practical co-operation of other State Boards of Health between here and the seaboard, as propositions therefor have been made. Of course such inspection would only be of persons and not of baggage, unless a case of sickness is found, when persons sick and exposed, with their baggage, would be put off and cared for at the place where found. On the score of safety, it is best to have all baggage which has been disinfected at quarantine go direct to the last distributing point on baggage car, as proposed above. This would save much trouble and anxiety in case the owner should come down with or be exposed to, infection en route, as the inspector would know just what baggage, if any, had been exposed with the owner and that all, not with him, was safe. It will be made the rule.

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INSPECTORS of the State Board of Health were appointed at the meeting held on the 6th inst., and are now on duty examining passenger trains, for persons coming from the eastern quarantines; for suspected baggage; as to the condition of sanitary conveniences, on cars and in stations, and taking every practicable precaution against the introduction of infectious disease.

The following is the present list to be increased or diminished as may be necessary: Dr. C. F. McComb, at Duluth; Dr. McGiffert, at Duluth; Dr. Ferd Hilbert, at St. Paul; Dr. F. S. Samson, at Minneapolis; Dr. J. S. Tracy, at Winona.

*To the Executive Officers and Members of Local Boards of Health in Minnesota,—*

Asiatic Cholera is now epidemic in Europe; has reached nearly every seaport from which immigrants come to this country; and has invaded the quarantine in New York harbor. The sea-board sanitary service of the sea-coast States is better than ever before, and they are taking unusual and judicious precaution to keep the infection of cholera out of this country. But, despite the wisest precautions, when widely epidemic, cholera has repeatedly, heretofore, broken over the bounds set up against it, and swept over the country. The severity of the sea-coast restrictions, the better inter-state inspection, and the season of the year, all favor the probability that it may not make an entry this year beyond quarantine. Unfortunately there is *no certainty* of this, and it therefore becomes my duty to urge upon you, as I have already done upon your municipal authorities, (see circular) the imperative necessity for immediate and thorough inspection of *privies, cess-pools, and other collections of decaying animal and vegetable matter*, and then the adoption of a systematic and regular disposal of such matters by shallow burial in cultivated and plowed soil hereafter. These are the nuisances, particularly *privies and other collections of human excreta*, which will furnish to the microbe of cholera, should it come, a congenial soil, and most surely and efficiently promote its rapid increase and destructive distribution.

*The cleaning out, disinfecting, and filling up with healthy soil, of such places, and their positive interdiction for the future, should be the central idea of your work, in view of the possibilities of cholera.* The best methods for localities having no sewer system, are stated in the circular on "Disposal of Excreta and Garbage;" page 60 of this number. You never will find more cordial popular support for this work than at present, but it must be done promptly, thoroughly, and *continuously from this time on, all winter, next spring, next summer*, for the probabilities of the advent of cholera next year are so great as to be serious cause for uneasiness, and for the fullest adoption of every measure necessary to make the soil, water supply, air supply of inhabited places as pure as possible.

Such Local Boards as have not complied with the provisions of Section 4, Chapter 132, Laws 83, as to the May sanitary inspection, are requested to do so immediately, and to use the report of such inspection as the basis of any action that they may take in this respect, and as the argument for asking municipal and popular support therefor.

Cholera, if it come to any locality, cannot effect a lodgment and become epidemic where the nuisances above described do not exist. A *clean town is practically safe from cholera.*

Do not be misled by the common impression that cholera cannot prevail in cold weather, or that it cannot store up, during that time, in the places above referred to, seed for a harvest in the warm weather to succeed. The history of the disease contradicts this, and justifies the determination to make the discovery and removal of these provocations to disease *regular and systematic from this time on.*

Most of our danger from the importation of infectious diseases comes through the immigrant from Europe his, clothing and baggage. At this time this danger is largely increased by the presence of cholera in the harbor of New York. The Secretary has been working for more than a year to have the inspection of both persons and baggage thoroughly made and certified to at the State and Canadian quarantine stations through which immigrants pass. A very considerable advance has been made in this direction, and the intermediate inspections which are now increasing in number and severity at the various distributing points in the United States and Canada add to our safety in this respect.

Still there will always be left the *possibility* and (if cholera should break over the New York quarantine) the *probability* that the infection of that disease may reach us in the persons or property of immigrants as above.

For more than a year, I have sent you notice of immigrants exposed to infectious disease at New York and Boston Quarantines and coming to your locality. There have been some defects in that notification, but its advantages have been so great that I am sure you have appreciated them. Measures are being taken to make it more rapid and complete. I have also arranged to send you any information which our Inspectors may obtain.

The State Board of Health have established a system of inspection of immigrants coming into the State on the Great Trunk Lines of Railway, and now call upon the Local Boards of Health to complete this part of our defense by the local inspection of immigrants for themselves. To that end the following suggestions are made:

The railroads are co-operating heartily, and have instructed their station masters to notify the Local Boards in whose districts their stations are, immediately, of the arrival of all immigrants. To facilitate this measure, all *Local Boards of Health will please leave the address of their Executive Officers, with the station-master where immigrants to their districts usually arrive*, and make every arrangement possible to enable him to give the earliest possible information. Local Boards at railway points will make arrangements for the prompt response to such notification and for the speediest practicable completion of the inspection. It is intended that immigrants and their baggage be detained for such inspection, but, as there are, usually, small accommodations at the minor stations for such purpose you will understand that the inspection must be done as quickly as possible.

The Health Officer should explain to the station master and all concerned the object of the inspection, which is to ward off possible infectious diseases in the persons, clothing and baggage of immigrants, and that to do this, it is best that *all* immigrants be inspected. The city and village police should be required to co-operate for the purposes of this work.

At all railway stations the immigrants are of two classes; one to stop there, the others to be met by relatives, friends, or others, and immediately conveyed with their baggage to inland villages and farms. This last class are much the largest.

*1st, as to those who are to stop in railway towns.* The inspection should consist of the following details:

(a) To ascertain whence they came, and by what route, and the length of time since they left quarantine; (b) whether themselves, clothing and baggage were detained there, and if so, for what and how long, and (c) if they have been sick en route or exposed to others who were sick; (d) if they are properly vaccinated; and any other detail which the inspection may suggest.

It is a safe rule to insist that all such immigrants be isolated where they are to lodge until they have taken hot baths all over, and boiled their clothing and baggage so far as possible in water, and until all things not so treated, trunks and containers included, have undergone a sulphur fumigation, if in the opinion of the Health Officer, necessary.

This measure is the proper one to adopt on the score of decency and cleanliness, and removes the greatest source of danger to others.

All persons who are *known to have been exposed* to infectious diseases, (by information from this office, or by evidence collected by the Health Officer,) should remain under observation after the above treatment for seven days for Cholera, and for fourteen days for Small Pox, unless successfully vaccinated.

The intention is that they be so located that any sickness occurring in the time specified would be immediately known to the local Board of Health, and therefore, except for special reasons, isolation and placarding are not required. Of this the Health Officer must judge.

As to immigrants going into villages and townships where are no railway stations; names and destination should be taken and reported to this office, or if known, to the Health Officer of the village, or the Chairman of the township to which they are going, as well as to this office. (Blanks for this purpose will be furnished by the Secretary.) In cases where such immigrants are found sick of diseases other than Small Pox or Cholera, they may be permitted to go

to their destination directly and without intermediate stop, if the Health Officer of the village or Chairman of the township Board to which they are going, can be notified at the same time, of their arrival so that proper provision can be made for their isolation and care. *In cases of small pox or cholera, the immigrant must be isolated and cared for by the Local Board where he leaves the train, and promptly telegraphed to the Secretary*

*The duties of Health Officers of villages and Chairmen of townships off the line of railways:*

All Health Officers and Chairmen of Local Boards should leave their address with station masters as above directed. They will observe the rule as to the isolation and disinfection of immigrants where they lodge, given above.

All Health Officers and Chairmen will report promptly to the Secretary of the State Board any cases of infectious diseases among immigrants as they now do for residents, and when they see false reports in newspapers as to the existence of infectious diseases in their district, they will telegraph immediately a denial to the Secretary. This to prevent a causeless alarm.

All should read this circular carefully and assist in every practicable way in securing the protection and safety of the people from infectious diseases, remembering that co-operation between the State and Local Boards of Health is a mutual assurance of safety.

Write for any further advice or instruction; for any the publications of the State Board (see full file of them already sent to you); or where in doubt as to the proper action to be taken.

When it is necessary to use the telegraph, *be as brief as possible, but write fully by next mail using a "special delivery" stamp.* C. N. H.

*Summary of the result of notification of immigrants exposed to infectious disease, and coming to Minnesota, from Sea-board Quarantines (New York and Boston) from January 1, 1892, to Sept. 1, 1892. (Eight Months.)*

Total number of cases reported.....	3738
Arrived well.....	1051
Arrived sick .....	10
Went into country.....	20
Passed out of State.....	33
Arrived before notice.....	58
Not found after search.....	1148
No reports have been received .....	1409
	3738

**TO THE MAYOR OF CITIES, PRESIDENTS OF VILLAGES, AND  
BOARDS OF SUPERVISORS OF TOWNSHIPS.**

GENTLEMEN:

I am instructed by the State Board of Health to call your attention to the enclosed documents which have already been served upon your Boards of Health, and to urge upon you in view of the possibilities of infectious disease from outside the State, particularly of Small Pox and Cholera from the seacoast in persons and baggage of immigrants, and the constant presence of Typhoid Fever, that you immediately attend to the following suggestions:

1st. That your Local Board of Health is legally organized, and if possible, under the Chairmanship of a competent medical man, and the organization immediately reported to this office.

2d. That said Board be required, if it has not already done so thoroughly, to make immediately the inspection required in the enclosed circular, entitled, "THE MAY SANITARY INSPECTION OF CITIES, VILLAGES AND TOWNSHIPS," to present a report thereof to yourself, and send duplicates to this office.

The information so obtained, particularly of "hole in the ground" privies,

cess-pools, and garbage heaps, is of the utmost importance as affecting the cleanliness of inhabited soil, and the purity of water and air supply of inhabited houses. The condition of the streets and alleys, though important and not to be neglected, is secondary to the above, especially as respects Cholera, which finds its readiest breeding place in the contents of those very places as does Typhoid Fever. (See tract on disposal of excreta and garbage—enclosed).

Local Boards of Health complain to me when urged to make this inspection and remove the nuisances which it reveals, that they receive no official or popular support for such work.

The time has now come when local authorities, and the people themselves, ought to see the necessity and advantage of it. The law is distinct and imperative, and this Board must insist that Local Boards perform their duty thoroughly and fearlessly, and respectfully urge upon you the necessity of taking such measures as shall encourage and require your Board of Health to do so.

Small Pox, though not now in Minnesota, is more than usually prevalent both among immigrants and throughout the country. This Board respectfully call your attention to Sections 25 and 26, Chap. 132, Laws of '83 (enclosed). More than sixty per cent of the school children of this State are unvaccinated. Small Pox rarely spares an unvaccinated child victim, and when it does, the deformity left is almost worse than death. Vaccination is the only reliable safeguard, and the vaccination of school children, therefore, before admission to school, should be made an invariable rule. (Tract enclosed).

This Board would suggest that you call a meeting of representative citizens, both men and women, to which you and others of your selection may explain the object and the necessity of the sanitary inspection; of thorough and regular removal of the nuisances above referred to; the importance of vaccination; the need for the regulation of offensive trades; the preservation in all practicable ways of the purity of inhabited soil; and so very largely of the water and air supply of the people living upon it. Voluntary sanitary associations, such as that of the women of St. Paul, to aid and co-operate with the Local Board of Health, will be found very helpful and efficient. I shall be obliged by prompt reply, and the promise of your hearty co-operation in the above measures. I am,

Yours very respectfully,

CHARLES N. HEWITT, M. D.,  
Secretary and Executive Officer.

---

The Advantages of Above Ground Collection of Human Excreta, with a Simple and Inexpensive Arrangement for the Destruction of Same by Dry Garden Mould.

In view of the constant presence of typhoid fever at all times; of cholera infantum; and the bowel affections of adults during the hot season, and the threatened coming of cholera, the following circular is of the greatest importance to the population of townships, villages and cities, where the disposal of human excreta is by a "hole in the ground," privies and cess-pools.

These are the very places where the above named diseases find their best soil for virulent and rapid growth and wide spread distribution. They, with the garbage heaps, are the common routes for the impurities and poisons which find their way from decaying animal and vegetable matters into the soil and water of inhabited places and into the common air of inhabited houses and towns.

The only remedy from these constant and increasing dangers is to clean out, disinfect, and fill up with clean earth all "holes in the ground," and to dispose of their contents with the garbage, by shallow burial on plowed and cultivated lands. This is the natural way, and a "dumping ground" without such burial is an inevitable nuisance.

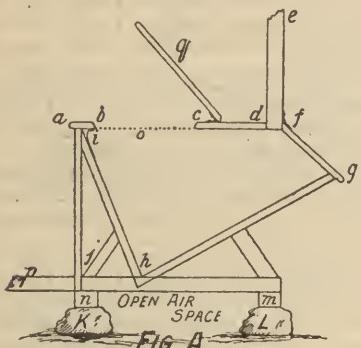


FIG. A.

Section through out-door earth closet. a, b, c, d, seat, usual size; f, g, h, i, receptacle for excreta; h, under point little back of centre of hole, b, c; h, g, so inclined to give room between f and g, for removing earth and excreta; f, g, door swinging on hinges; f, opening for cleaning, airing and sunning the box, g, h, i; i, zinc to direct urine into box; p, floor of house; e, wall of house. Box, i, h, g, rests upon sills, m and n of house. Sills m and n should rest upon stones, k and l, and they on top of ground, leaving space for circulation of air. Box, i, h, g, to be made of plank and saturated with petroleum paint before use.

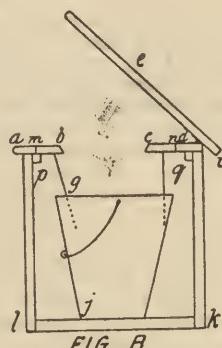


FIG. B.

Section through centre of house closet. a, b, c, d, seat, distance a, d, 13 in.; a, b, 4½; b, c, 10; b, c, the seat rests on cleats, p and q, and can be removed, joints at m and n.

To b, c, is attached a truncated cone, g, h, of zinc, 4 in. long; diam, 12 in. at top, 8 in. at o; g, j, is zinc pail, 13x13 in., with bail n; cover, v, e, turns on hinge d, and serves for back, when raised. The box to be saturated with boiled linseed oil. The earth box of the same size and oiled. The earth scoop of zinc, capacity, 1 pint. Use coarsely powdered charcoal with the earth, if possible.

The principles involved in the sanitary use of dry garden mould, peat, clay, and the like, are very simple, and their practical application to the disposition of human excreta is very easy too, provided that they are thoroughly understood, and that their natural limits are respected in their application to the intended use. This has not always been done, in the attempt to substitute the earth closet for the "hole-in-the-ground," by Health Officers, or by householders who have attempted it for themselves.

As has been repeatedly stated, in these columns, the majority of all who have tried to use dry earth for this purpose, have paid more attention to the mechanism of the closet than to the quality and condition of the earth. While some have trusted to the mechanism and omitted the constant oversight without which any machine will, in the long run, fail.

The principles involved are these :

1. Dried (best, sun-dried) and coarsely pulverized garden mould, peat, clay, (and other soils, in proportion to the amount of these which they contain) prevent the odors of putrefaction, and secure the conversion of excreta into combinations harmless to animals, but exactly adapted to nourish vegetable life.

2. To do this most thoroughly, it is essential that soil of the character specified, should be *dry* and *in powder*. The apparent, and probably correct reason for this is the freest admission of air, and the avoidance of that "water-logged" condition, which, in common experience, is so favorable to putrefaction and mal-odorous decay.

3. When used for dry earth closet, no other fluids must be added than those accompanying each discharge under, and upon which, enough

dry earth must be thrown just before, and just after use, to prevent any appearance of wet. Dampness is permissible, soaking wet not. *The dry earth closet is not adapted to the disinfection of chamber, or kitchen slops,* and should never be used for that purpose. Assuming the above conditions have been complied with, dry earth as specified, and in quantity at least a pint before, and after use, the earth closet may be relied on for efficient work, under intelligent and regular supervision. Out of doors the freest ventilation consistent with dryness, is desirable. This should be above, below, and all around the container.

Another essential is that the container be non-absorbent of either odors or fluids; still another, that it be of such form as to be easily and thoroughly emptied and cleaned; and lastly, that the mechanism be of the simplest and least expensive construction consistent with efficiency.

All these requirements are reasonably met in the plans herewith submitted. Fig. A represents a section of an outhouse, in which the ordinary construction is changed to that of an inexpensive earth closet, costing less than a single cleaning of the old and filthy vault. It is, as the engraving shows, open to the air on all sides, and its walls should be low enough to permit free ventilation between the seat and itself at the ends. Behind, it projects sufficiently to make the removal of its contents easy, but has a cover to keep out the rain. The whole interior of the box, (well made of seasoned wood,) must be saturated with petroleum paint, repeatedly till the surface is glossy. Then when thoroughly dry, it will resist all fluids and be easily cleaned as need be. For the dry earth, a box or barrel, with a pint zinc scoop for handling it, should be on the floor of the outhouse, handy and ready for use.

*For household or sick room use, No. 2 is all that is required,* provided the following conditions are complied with:

1. That the fluid excreta be collected in an earthen vessel for other disposal, and not, (except for young children,) admitted to the closet.
2. That the earth be thoroughly dry, and in coarse powder. An admixture of coarsely powdered charcoal is a cheap, easy, and very efficient addition, for either indoor or outside use. *Use no odoriferous disinfectants in earth closets.*
3. That the closet be under constant supervision, and that the first evidence of foul odor be immediately investigated.

The conditions seem, at first sight, onerous, but after all they are no more so than those which should govern the care of water closets, and sinks. The household earth closet, conveniently placed in the woodshed, or other place outside the house, but not out of doors, will, especially in winter, be found a healthy substitute for the usual outhouse, and do away with the inclement journey, which is so common an excuse for the neglect, or postponement, of a necessary daily duty.

*The winter use of the earth closet.*—The earth to be used being dry does not freeze, so that it is as available and efficient as in summer, whether out, or in doors.

*The preparation of the dry earth.*—A coal-ash sieve for sifting the earth before drying. The sifted material should be spread on a floor or rough platform, under shelter from rain but open to air. As fast as dried, store in barrels, in a dry place.

A half dozen barrels will serve a large family from October to May. It is easy and better to provide twice as much.

*The disposition of the contents of the earth closets,* if cared for as above directed, is very easy and inoffensive. Those in No. 1 can be quickly shoveled into a wheelbarrow and thence on the garden, spading it under the surface soil near growing things. As to the winter accumulation, it will, of course, remain in the out-door closet till thawed out in the spring, when it is to be treated as above. Any accumulations in the house closets should be collected under cover *out of doors*, and treated as above in the spring.—C. N. H.

**INFECTIOUS DISEASES OF MAN.****NOTIFICATION OF INFECTIOUS DISEASES, AUGUST, 1892.**

Diphtheria .....	92 cases,	23 deaths.
Scarlatina .....	121 cases,	14 deaths.

**INFECTIOUS DISEASES—THEIR WHEREABOUTS.**

(Our office register is a large map showing every township, borough, village, and city. Infectious diseases are recorded by colored pins as soon as reported and this mark is not removed till the outbreak is officially reported to have ceased, and disinfection done.)

**MINNESOTA.**—*Diphtheria* during August invaded 16 localities in 12 counties, 1 locality in 10 counties, and 3 in 2.

*Scarlatina*, during August, invaded 5 localities in 4 counties, 1 locality in 3 counties, and 2 in 1.

*Reports of U. S. Commissioners of Immigration from the sea-ports specified, for the month of August, 1892.*

Number of reports received from U. S. Commissioners of Immigration during August, 1892.....	14
Number of suspected immigrants reported .....	209

Details as follows:

## FROM NEW YORK HARBOR.

Immigrants exposed to measles.....	206
“                scarlet fever.....	3

The immigrants went to 41 different places in the State; 76 separate lists were sent out by the Secretary to the Local Boards of Health.

**INFECTIOUS DISEASES OF DOMESTIC ANIMALS.***Glanders—*

AUGUST, 1892.

Remaining on hand, Aug. 1.....	25	Killed during the month.....	7
Reported during the month.....	13	Released during the month.....	0.
Remaining isolated Sept. 1, 32.			

Most of them “suspects” under observation.

**MINNESOTA WEATHER SERVICE.—REPORT FOR JULY, '92.**

FURNISHED BY MINNESOTA STATE WEATHER SERVICE, J. H. HARMON, DIRECTOR.

ATMOSPHERIC PRESSURE—IN INCHES.—Monthly mean for State, 30.01; maximum observed 30.47, at Alma City, on the 7th; minimum observed, 29.50, at St. Vincent, on the 23d; range, 0.97.

TEMPERATURE, DEG. F.—Monthly mean for State, 69.9; monthly mean for northern section, 67.7; monthly mean for central section, 69.8; monthly mean for southern section, 70.7; highest monthly mean, 72.5, at Sheldon; lowest monthly mean, 63.8, at Long Prairie; maximum observed, 102, at Kinbrae, on the 18th; minimum observed, 35, at Eagle Bend, on the 1st; range for State, 67; mean maximum for State, 91.9; mean minimum for State, 47.4; greatest local monthly range, 57, at Kinbrae; least local monthly range, 31, at Pine River Dam; greatest daily range, 33, at St. Vincent, on the 9th; least daily range, 4, at Duluth on the 18th, and Red Wing on the 2d.

PRECIPITATION—IN INCHES.—Average for State, 4.81; average for northern section, 2.99; average for central section, 5.74; average for southern section, 5.20; greatest amount, 12.01, at Minneapolis; least amount, 1.25, at Ash Creek.

WIND.—Prevailing direction, south.

FORECASTS.—According to the reports of displaymen, the weather bureau forecasts during the month, for Minnesota, were verified as follows: Weather, 84.0; temperature, 82.1; weather and temperature combined, 83.2.

**DISTRIBUTION AND MORTALITY OF THE MORE IMPORTANT DISEASES IN MINNESOTA in July, 1892, (from returns of 764 localities, received up to August 24, 1892.)**

POPULATION, (CENSUS OF 1890.)

STATE .....	.....	1,301,826
1. First Class (cities of over 100,000), St. Paul and Minneapolis.....	.....	297,894
2. Second Class (cities of between 15,000 and 50,000), Duluth and Winona.....	.....	51,923
3. Third Class (cities of between 5,000 and 15,000), Stillwater, St. Cloud, Mankato, Faribault, Red Wing, Brainerd and Rochester.....	.....	51,622
4. Fourth Class (20 cities and villages of over 2,000 and less than 5,000 population) .	.....	60,319
5. Fifth Class (cities, villages and townships, population less than 2,000).....	.....	840,668

The following tables are founded on 721 deaths in July.

MORTALITY IN STATE.—JULY.

Average of 5 years.

Total, July, 1892.	Localities Invaded	Counties Invaded	July, No. of Cases. 860.7 (av. 4 yrs)	Ann'l Rate per 1,000 Living 8.04
From all causes.....721—391 m., 328 f.*	34	26	78. (av. 3 yrs)	.8
Tuberculosis.....83—36 m., 47 f.	10	7	30.	.28
Diphtheria.....21—11 m., 10 f.	2	2	4.6	.42
Croup.....2—2 m., 0 f.	8	6	19.2	.18
Pneumonia.....19—9 m., 10 f.	5	5	11.8 (av.4 yrs.)	.11
Bronchitis.....8—4 m., 4 f.	11	11	15.4	.14
Enteric Fever.....16—9 m., 7 f.	6	6	7.2	.06
Scarlatina.....12—4 m., 8 f.	6	5	1.8	.02
Whooping Cough.....9—4 m., 5 f.	3	3	7.2	.06
Measles.....4—3 m., 1 f.	26	19	215.2	2.01
Diarrh. Dis. of Chil'n'13—62 m., 51 f.	None.			
Influenza.....				

\* 2 unknown.

MORTALITY BY CLASSES. (See population above.)

1—First Class.	2—Second Class.	3—Third Class.	4—Fourth Class.
From all causes.....396—208 m., 186 f.*	39—21 m., 18 f.	38—20 m., 18 f.	37—21 m., 16 f.
Tuberculosis.....37—16 m., 21 f.	5—2 m., 3 f.	3—1 m., 2 f.	5—4 m., 1 f.
Diphtheria.....5—3 m., 2 f.	None.	5—3 m., 2 f.	None.
Croup.....1—1 m., 0 f.	None.	None.	None.
Pneumonia.....12—4 m., 8 f.	None.	None.	2—2 m., 0 f.
Bronchitis.....5—3 m., 2 f.	None.	1—1 m., 0 f.	None.
Enteric Fever.....7—4 m., 3 f.	1—1 m., 0 f.	None.	1—0 m., 1 f.
Scarlatina.....7—3 m., 4 f.	2—0 m., 2 f.	None.	1—0 m., 1 f.
Whooping Cough .....	5—1 m., 4 f.	None.	1—1 m., 0 f.
Measles.....2—1 m., 1 f.	None.	None.	None.
Diarrh. Dis. of Chil'n' 82—44 m., 98 f.	7—5 m., 2 f.	2—1 m., 1 f.	4—3 m., 1 f.
Influenza.....	None.	None.	None.

\* 2 unknown.

COMPARATIVE MORTALITY IN CITY AND COUNTRY, JULY, 1892.

In 31 Cities and Villages, Population over 2,000 each. (461,158 Inhabitants.)	In Cities, Villages and Towns, Population less than 2,000 each. (840,668 Inhabitants.)
---	--

Total Deaths.	Deaths to 1,000 Living.	Total Deaths.	Deaths to 1,000 Living.
From all causes.....480—270 m., 208 f.*	12.67	241—121 m., 120 f.	3.47
Tuberculosis.....50—23 m., 27 f.	1.32	33—13 m., 20 f.	.47
Diphtheria.....10—6 m., 4 f.	.26	11—5 m., 6 f.	.16
Croup.....1—1 m., 0 f.	.02	1—1 m., 0 f.	.01
Pneumonia.....14—6 m., 8 f.	.36	5—3 m., 2 f.	.07
Bronchitis.....6—4 m., 2 f.	.15	2—0 m., 2 f.	.03
Enteric Fever.....9—5 m., 4 f.	.23	7—4 m., 3 f.	.1
Scarlatina.....10—3 m., 7 f.	.26	2—1 m., 1 f.	.03
Whooping Cough .....	.18	2—2 m., 0 f.	.03
Measles.....2—1 m., 1 f.	.05	2—2 m., 0 f.	.03
Diarrh. Dis. of Chil'n 95—53 m., 42 f.	.25	18—9 m., 9 f.	.26
Influenza.....	None.	None.	None.

\* 2 unknown.

Dead to 1,000 living.

Corrected to actual population  
for which deaths have been rep't'd

†State at large .....	6.74	9.86
Cities of First Class.....	16.39	16.39
Cities of Second Class.....	9.24	9.24
*Cities of Third Class .....	8.93	10.00
Cities and Villages of Fourth Class..	7.47	7.47
{ C. V. and T. of Fifth Class.....	3.47	7.19
{ 732 Cities, Villages and towns reported for July.		
† Actual population accounted for, 889,779.		
* Brainerd not reported.		
† Population 406,344.		

# PUBLIC HEALTH IN MINNESOTA.

CHARLES N. HEWITT, M. D., Editor.

OFFICIAL PUBLICATION OF THE STATE BOARD OF HEALTH  
AND VITAL STATISTICS,

PUBLISHED MONTHLY AT THE OFFICE OF THE BOARD, RED WING MINN.

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NOT a case of cholera at New York Quarantine since the 21st, and none in the city since the 20th, so that if any new cases occur they will be due to infected things, or to a new importation. The cholera "suspects" are nearly all distributed and but one more infected steamer remains in isolation. All cases imported were either Russian or infected from there; all came from Hamburg and on one S. S. line. The outbreak in France seems to have had another origin than the Hamburg epidemic, and it is well to remember that neither is ended. The following statement attributed to Pettenkofer is worth attention:

"I think cholera will prevail next year. Wherever local conditions are ripe to receive, there will be cholera. I am afraid the United States will suffer, but I hope not. The Americans must see that their cities and towns are in the best possible sanitary condition."

A SIATIC CHOLERA was detected in passengers upon the S. S. Moravia in the harbor of New York August 29th and has continued to arrive to Sept. 20th on steamers of the same line from Hamburg. No immigrants from infected ships had been permitted to leave up to September 23d, when that class,

after proper isolation and disinfection of persons, clothing and baggage were furnished with the certificate required by the Conference of State Boards of Health, held in Chicago September 14 (see rules on p. 70), and are now coming into the State and going to their local destinations under the direction of the State Sanitary Service, which keeps them under observation for a week after arrival.

On the 14th of September, the Health Department of New York admitted that deaths occurring in five cases (which must have taken the infection almost as early as the last of August), were from Cholera. Other isolated cases have occurred there since, but none have been traced to infection from persons in quarantine.

This is the old story of Cholera invasions into this country, and the lesson for us is a very important one, viz: Not to rely upon sea-board quarantine measures for our protection, nor upon intermediate inspections of immigrants, however frequent and thorough, but upon getting our homes, towns and cities into that condition which is the surest protection against cholera, (as all other infectious diseases) *make them clean*.

Let no one belittle the value of sea-coast sanitary service because, in its best form, it can not exclude all infection of cholera; nor reject intermediate inspection and disinfection because they do not reach and exclude *all* of the danger against which they are used. What these methods do is to exclude much the largest proportion of infected persons and baggage till safe; keep a close oversight of the whereabouts of the disease; detain and care for most all of the actual cases which pass through them; stimulate a healthy and well-ordered activity and co-operation between Boards of Health, and an approach to common methods of work; all of the greatest value for service, and for the prevention of sudden and unreasoning panic.

But allowing all that can be justly said for these methods, it would be very unwise to forget our own share in the work, or that the only protection from their inevitable proportion of failure is to put our houses and towns into that condition which makes it impossible for cholera, even if come, to make a dangerous lodgement. Proof is overwhelming that it is a "filth disease" and that like its fellows of that class, typhus and enteric (typhoid) fevers, it strikes localities and people where filth abounds, and especially where the disposal of excreta is such as to favor the fouling of soil, water, and air of inhabited places thereby. The removal of these conditions is the first precept of Public Health, and a necessary preliminary to any other satisfactory sanitary work, because it is in them that the infection of cholera, typhus, and enteric fever find their

best soil for the most active and prolific growth, and opportunity for mysterious and widespread distribution.

The relation of these collections of filth to other diseases is well known to every householder, and yet how many, of their own accord do the proper thing for the safety of their families and their neighbors, clean, disinfect, and fill up with healthy soil, "holes in the ground" and substitute an above ground water-tight receptacle?

Local Boards of Health and physicians know these facts and have no longer any just excuse for neglecting to join in a common crusade against them. It is useless to clean streets and alleys, remove garbage and dead animals and leave the worst evil untouched, and it is a lie having done the first and left the last, to declare a property or a town to be clean. Such a home or locality is a whitened sepulchre, outwardly fair, but within as dangerous as ever.

The State Board of Health will leave nothing undone in its relations with the sea-coast quarantine; with other State Boards; or with the U. S. government. Its powers are ample both as respects danger of infection on the border or within the State, and it stands ready to co-operate with any local Board or citizen who will do a plain duty.

This circular is intended to indicate where our greatest danger from cholera now lies; the best methods of preventing the occurrence of the disease, or, should it occur, how to control it.

The special cause, and its products, are found only in the discharges from the sick; upon, or in clothing, bedding or other wearing apparel infected thereby, or in privies or other places in which the debris of such patients are put. It is a peculiarity of the infection of this disease that dry or moist heat above 212 F. is speedily fatal, as are also acids, or strong alkalies. It grows best in a feeble alkaline solution, and in moist earth. Its only mode of access to the body, now known, is by the mouth. It does not, so far as known, float in the atmosphere, but is gotten in a thousand ways from soiled hands, food, drink and clothing. It is not so infectious as many others of its class, and the careful physician and nurse in good health, caring for such a case, and using well known and reasonable precautions, rarely contract the disease.

*The period of incubation of cholera* (the time from receiving the infection to the outbreak of the disease,) varies from a few hours to several days, but it may be safely taken to be not more than fifteen or rarely beyond five from the last exposure. In many cases, especially at the beginning of an outbreak, there is nothing in the symptoms of the patient to lead him, or his physician, to suspect the attack to be other than cholera morbus, and therefore when the disease is suspected to exist in a neighborhood, or is looked for there, the most careful attention

and treatment should be given to such symptoms; physicians should report all cases promptly to the Local Board of Health; they should be isolated, and their discharges disinfected as if they were known to have cholera. Prompt and immediate treatment of diarrhoea is the best medical aid to the control of cholera.

All immigrants coming to this country from abroad are now carefully examined at quarantine, and detained at least twenty-four hours, even if no suspicion is attached to them. Suspected cases and their baggage undergo a prolonged detention, and are thoroughly disinfected. All who pass from quarantine receive a certificate of freedom from the disease, and their baggage is tagged with a similar certificate. (See rules on p. 70).

Coming from quarantine to Minnesota, immigrants are repeatedly re-inspected, so that the danger of any transmission of diseases by them or their baggage is exceedingly small. They are examined on the arrival in this State, by the inspectors of this Board, and at their local destination by the local Health Officer.

As respects persons now in quarantine upon, or from, ships infected with cholera, the strictest precautions are used, and when they are released, telegraphic notice, giving name and destination, coming to Minnesota, will be sent to the Secretary, by special arrangement, who will notify the Local Board interested. September 25th the first immigrants from the Moravia came on with the certificates required by the conference of State Boards of Health, (Chicago, September 14.) No danger is anticipated from them.

Our danger *from persons* is rather from residents of some part of this country who have, (as did the cases in New York,) received the infection, from an unknown source. At this season of the year, such cases are likely to have a very mild attack, and not even to be aware themselves that they have cholera, but their discharges are as dangerous to other people as those of a severe case.

The greatest of all present and immediate future dangers will be from infected clothing coming after the owner and not suspected; from *rags* and the like imported this fall and winter from the cholera districts to supply the insatiate demands of our paper mills; from *shoddy* imported to mix with cheap woolens, in clothing, blankets, carpets and similar products; *wool-shoddy* coming into increasing use for mattresses and pillows; all of a character to come close to the unsuspecting victim, particularly in bedding.

Our safety is to be found in the measures already urged upon Local Boards of Health and municipal authorities. They are:

First. A thorough inspection of the whereabouts and character of every receptacle for human excreta in inhabited places, and then the cleaning of all such places of their contents, their careful disinfection and the substitution therefor, (except where there is a sewer connection and water supply,) of an above

ground, water tight receptacle, to be regularly inspected and cleaned, and the record of such inspection and cleaning kept by the Local Board of Health. Instructions for such cleaning with suggestions for a substitute have already been distributed to every Board of Health in this State.

Let it be distinctly understood that such places are where the infection of cholera will lodge and grow, and from which it will spread. Disinfection is not enough, there must be entire removal, and the substitution of a method thoroughly under control. Garbage comes next in order of danger. Local Boards of Health will make a vital mistake if they allow a single exception, to the rule above insisted on. *It is the only road to safety now, and for the whole of next year probably, so far as cholera is concerned.*

Further, (what is of really more importance,) it is in these places that the cause of enteric fever, is most often found, as well as a constant provocation to the occurrence and virulence of other infectious diseases, so that their removal is even more essential on this account than for possible cholera.

There is not likely to occur a better opportunity, with the hearty support of popular sentiment, than the present one, for the absolute removal of these "holes in the ground," nuisances, and causes of diseases and their prevention hereafter. Boards of Health incur a grave responsibility when they neglect to avail themselves of so favorable and important an opening for this much needed advance in sanitary methods.

As to disinfection, nothing is better for the destruction of excreta than the fresh slack'd lime or lime water\* described below, for house use, and for above ground closets. A saturated and acid solution of sulphate of iron will do for coarser disinfection and as a deodorizer, but the two first, prepared from fresh common quicklime supply all that is needed for ordinary disinfecting purposes, in cheap, odorless, easily prepared, efficient and quite permanent form. The lime water is best for bed-room use, and for applying with whitewash brush to suspected walls or ceilings. As much as a pint should be kept constantly in the vessel used by patients in a sick room. For outside use, it may be thickened by stirring up the undissolved lime to the thickness of ordinary whitewash, and poured upon the excreta. The powder of the freshly slack'd lime may be used in the same way out of doors, because it increases the dryness by the absorption of moisture.

Common, well made, "soft soap" is a strong caustic alkali, and by its free potash a powerful disinfectant, and therefore best adapted for cleansing purposes on floors, furniture, or other places or things soiled by suspected discharges of

the sick, and in hot solution, should be used for soaking and boiling suspected clothes, bedding and the like.

\**Fresh slack lime.* Prepare as for whitewash by taking best quicklime in lump, put in a pail and add about one-third as much water, cover closely and slack to a powder. This must be used soon for it rapidly loses its causticity. If enough water is added to make of the consistence of cream it may be preserved in full strength till used by simply covering its surface with a thin layer of common kerosene.

*Lime-water* is made from the above in the proportion of one to three of water (boiled water best) stir it well and cover with kerosene as above. These with strong soft soap furnish enough disinfectants for disposing of excreta in the sick room; the cleansing of floors and furniture; the cleansing and whitening of walls; the disinfection of above ground closets, and the disinfection of clothing, bedding, etc., which need to be boiled and cleansed.

*Whitewash so prepared* should be freely used in cellars and basements. "Kalsomine," "alabastine" and the like are worthless, because not caustic alkalies as true whitewash is.

#### RAILROAD AND OTHER TRANSPORTATION OF IMMIGRANTS.

THE following memorandum, published by the State Board of Health of Illinois relates to the proceedings of certain State Boards of Health as respects the regulation of immigrants from seaports inland, while Asiatic cholera or small-pox threatened to come to us in that way. It indicates a very important step in sanitary work, and is a satisfaction to know as the writer had occasion to do, that the great railroads are in hearty sympathy with it.

"Pursuant to the invitation of the Illinois State Board of Health, a conference of representative of Western State Boards was held at the Grand Pacific Hotel, in the city of Chicago, on Wednesday, September 14, 1892, for the purpose of formulating a uniform code of rules and regulations to govern the transportation of immigrant passengers and their effects into the interior.

At this conference there were present Drs. C. N. Hewitt, Secretary, Minnesota State Board of Health; Solon Marks, President, and J. T. Reeve, Secretary, Wisconsin State Board of Health; C. O. Probst, Secretary, Ohio State Board of Health; R. F. Atkinson, Secretary, Missouri State Board of Health; J. F. Kennedy, Secretary, and J. C. Schroeder, member, Iowa State Board of Health; Delos Fall, member, Michigan State Board of Health; William Bailey, member, Kentucky State Board; John D. Ware, Health Commissioner, Chicago; and of the Illinois State Board of Health, Drs. W. A. Haskell, President, B. M. Griffith, R. Ludlam, A. L. Clark, D. H. Williams, and F. W. Reilly, Secretary.

Dr. Haskell presided and a draft of the proposed rules was read by Dr. Hewitt. After discussion and amendment, the rules were adopted—subject to revision—at the afternoon session, to which representatives of the leading railroad companies had been invited.

At the afternoon session the rules were adopted as follows:

Requirements of the State Boards of Health of the States of Illinois, Minnesota, Wisconsin, Iowa, Michigan, Kentucky, Missouri and Ohio, for the Transportation of Immigrant Passengers and their Effects into the States Represented by said Boards.

RULE 1. That this Conference recommends that every immigrant passenger, before being allowed to land at any port of, or to cross the borders into, the United States, shall obtain a certificate from the health officer of the port or point of entry, or from a sanitary inspector of the United States Marine

Hospital Service (where that service has charge of quarantine and disinfection,) or from the quarantine officer at Grosse Isle, setting forth the name of such immigrant, whence emigrated, name and port of clearance of vessel, and the date of arrival at port of entry, the fact of the existence or non-existence of any infectious disease on said ship, the period of detention therefor at quarantine, local destination of the immigrant in any state or territory of the United States, and further certifying that he or she is free from any danger of conveying the contagion of Asiatic cholera or small-pox in person or effects and that his or her effects and belongings have been subjected to approved processes of disinfection before being allowed to enter into the United States.

RULE 2. That a certificate of disinfection, as required in Rule 1, signed by the official under whose charge the work of inspection and disinfection has been performed, and giving name of owner and date of issue, shall be conspicuously attached to each piece of baggage of such immigrant.

RULE 3. That any railway or transportation company accepting, for transportation through the territory represented by this conference, immigrants not provided with certificates described in Rule 1, or whose baggage does not bear the certificate provided for in Rule 2, shall be subject to the quarantine rules of the States represented in this conference and to any detention at the border, or within the territory, of such State, for such thoroughness of inspection as the authorities of each State may deem necessary.

RULE 4. That immigrant passengers, if not conveyed on separate trains exclusively devoted to such service, shall be transported, when practicable, in separate cars to which access shall be denied to other passengers, and the disinfected baggage of such immigrants, other than the hand-luggage carried by them, shall not be accessible to them until they have arrived at their respective points of destination; and similar precautions shall be observed in the transportation of immigrant passengers by water.

RULE 5. That railroad or other transportation companies carrying such immigrants shall telegraph to the Secretaries of the State Boards of Health and to the designated health authorities at the distributing points, advising of the hour of arrival of such immigrants and in time sufficient to allow of the train being met by inspectors, and shall also telegraph notice to said authorities of any sickness occurring among such immigrants.

RULE 6. That the requirements set forth in Rules 1 and 2 shall apply to passengers of any class arriving on a vessel infected with Asiatic cholera or small-pox.

RULE 7. That these rules shall take effect on and after the 26th day of September, inst."

(The following memorandum was prepared for the July number but crowded out. The disease disappeared in New York late in July but there is still interest in the subject which justifies the publication.)

**T**YPHUS FEVER. (Ship fever, jail fever, famine fever, etc.) has not invaded Minnesota to the knowledge of the writer, but now that it has appeared among immigrants in New York harbor, three times since February, (twice in July,) and has persisted in that city since February to July 23, it is worth while that we learn something of its character and operation.

It is due to a specific virus communicated from one person to another, in the breath and exhalations from the skin; has a peculiar eruption; nervous symptoms, and very marked muscular debility. It is very infectious in close quarters, or to those very near the patient, the infection (away from its source—a victim) lives in three ways: 1st, in the air of close, foul, infected rooms and dwellings, and even in the material of such buildings. 2d, in infected clothing, bedding, baggage, rags, and whatever having the infection is immediately and closely packed so as to exclude fresh air and light. 3d, in the person of

one who having "taken" it, is still apparently well, the period of incubation not having expired.

It is evident that we may be threatened by the two last, and that the second is our greatest danger. The infection is speedily destroyed in the open air and sunlight. Its favorite locality is the tenement districts of cities, where, as in New York, this season, it persists despite every measure of isolation and disinfection used, from February till July.

Our safety, then, will be amply secured if Local Boards of Health require all immigrants who are known to have been exposed to it, to wash and disinfect all clothing and baggage, and if they are put under observation for two weeks from the time of last exposure.

If any immigrant is sick on his arrival he should be isolated with all his baggage till a physician can be obtained, if there be no health officer. For the benefit of the Health Officers and physicians, not familiar with the disease, the following statement in aid of diagnosis is offered:

Sir William Jenner's definition: "A disease arising from a specific cause, attended by rigors, chillness, headache, mulberry rash, frequent pulse, delirium, dry, brown tongue, and prostration, and terminating on the 21st day."

In this country, the following have been the most marked symptoms and correspond with those exhibited by the Russian Jews in the Riverside Hospital in New York Harbor last spring.

The patient is early dull and listless, has difficulty in fixing his mind, is composed. *The face looks stupid and heavy and is suffused.* *The temperature rises early with little daily change, pulse being quick, frequent and weak.* *The tongue is first white, then brown, and dry, with sordes at the last.* *The rash, rarely absent after the sixth day, begins in small, dusky, brown spots, which do not fade till convalescence begins, it may appear in pressure at first, not later, and become protective in bad cases, differing from the variola of enteric fever.* *Bowels, no diarrhoea or iliac tenderness.* *Muscular weakness, with early and marked dullness and lethargy, wandering and pointless delirium are very characteristic.* Hence the dorsal decubitus and sliding towards foot of bed, with constipation and retention of urine. The early eruption might be confounded with rubella and scarlatina, but the advanced stage never.

Such cases should be immediately isolated in very open quarters; sheds or tents are best in warm weather. With cleanliness and thorough and constant ventilation, the danger is small. All clothing, bedding and the like to be put into scalding water, and hung out to dry in the open. The infection does not spread through the air, out of doors, but is quickly destroyed there.

C. N. H.

#### THE HEALTH OF CHILDREN IN THE SCHOOLS.

A LARGE edition of the first memorandum on this subject has been distributed and there is a call for another edition on the part of a few County and City Superintendents, and individual Teachers. Some of the Local Boards of Healths are awakening to the advantage of the aid of Teachers in dealing with infectious disease.

It is a curious fact that there is no class more difficult to reach effectually for this purpose than Teachers. The present paper discusses but one part of their duty, and legal obligation to assist Local Board of Health. It seems to be the common impression among those governing State and Denominational Schools that their co-operation is a purely voluntary one to be determined by their own ideas of its need. To such and to hesitating Local Boards of Health doubtful of their right to demand this co-operation, the following excerpts from Chapter 132 Laws 1883 are submitted.

"SEC. 23. That it shall be the duty of every person knowing of any person sick of any contagious disease dangerous to the public health, who he shall have reason to think requires the attention of the Local Board, to at once report the facts to the Board in regard to the disease, condition and dwelling place or position of such sick person.

SEC. 24. That no person shall within the limits of any town, city or village within this state, without a permit from the Local or State Board of Health, carry or remove from one (1) building to another, or from a vessel to the shore, or any railway cars, any sick person of any contagious disease, or the body of any person having died of contagious disease; nor shall any person, by any exposure of any individual sick of any contagious disease, or of the body of such person, or by any negligent act connected therewith, or in respect to the care and custody hereof, or by a needless exposure of himself, cause, or contribute to or promote the spread of disease from any such prison or from any dead body.

SEC. 25. That every person being the parent or guardian or having the care, custody or control, or any minor or other person, shall, to the extent of any means, power or authority of said parent, guardian or other person, that could properly be used or exerted for such purpose, cause and procure such minor or person under control to be so promptly, frequently and effectively vaccinated that such minor or individual should not take, or be liable to take the small pox.

SEC. 26. That no principal, superintendent or teacher of any school and no parent, master or guardian of any child or minor, having the power and authority to prevent, shall permit any child or minor having scarlet fever, diphtheria, small-pox or any dangerous, infectious or contagious disease, or any child residing in any house in which any such disease exists, or has recently existed, to attend any public or private school, until the Board of Health of the town, village, borough or city shall have given its permission therefor; nor in any manner to be unnecessarily exposed, or to needlessly expose any other person to the taking or to the infection, or any contagious disease.

If anyone ask why should School Boards and Teachers be held to this accountability? The following statistics supply part of the answer:

TABLE SHOWING MORTALITY BY SPECIFIED CAUSES AT ALL AGES, AND AT THE SCHOOL GOING AGES.—AVERAGES OF FIVE YEARS, (1887-91).

ANNUAL MORTALITY BETWEEN THE AGES OF 5 AND 20 YEARS. FROM ALL CAUSES 1647.	Average Annual Mortality of all ages.	Average Annual Mortality 5 to 10 years		Average Annual Mortality 10 to 15 years.		Average Annual Mortality 15 to 20 years.		Per Cent of Mortality at school-going age to total deaths from same cause at all ages.	Per Cent of Deaths from specified causes to total deaths from all causes between 5 and 20 years.
Tuberculosis.....	1,393	28	42	131	201	14.5	12.2		
Diphtheria and Croup	1,041	321	112	39	472	45.3	28.6		
Pneumonia.....	846	43	20	36	99	11.7	6.0		
Typhoid fever.....	581	32	40	89	161	27.7	9.8		
Bronchitis.....	339	9	2	4	15	4.4	.92		
Scarlatina.....	210	53	11	5	69	32.8	4.2		
Measles.....	170	16	8	10	34	20.0	2.07		
Total.....	4,580	502	236	313	1,051	22.9	63.8		

This table is founded upon a careful compilation of the returns of the last five years and relates to the diseases which have caused the greatest mortality at all ages, and more in detail, at the school-going age, the last divided into quinquennial periods. By so doing we bring out the fact that the danger of death by infectious disease as a whole, and by each leading affection of the class, is largely affected by the age of the victim, and therefore will be found to vary in schools of different grades, suggesting increased vigilance on the part of teachers. The first column of the table gives you an average of the eight diseases which cause the greatest mortality at all ages. In order of mortality

Tuberculosis leads and Diphtheria is a close second, the others following in the order given.

But it is the mortality at the school-going age which concerns us now and the most striking fact brought out by the table is that the Diphtheria; is six times as fatal as any other disease in the first class (children from 5 to 10 years of age); more than twice as fatal as any other in the second class (10 to 15 years); but not one-third as fatal as Tuberculosis in the third class (15 to 20 years) but not half as fatal as Enteric (Typhoid) fever in the same class.

To state the facts in a professional way, Teachers of primary schools should be on the look out for Diphtheria, as 41.58% of all cases at all ages, occur between the ages of 5 and 10 years, while in the last class (15 to 20) but 3% of all deaths from this cause occur. These deaths at the school going ages together, are 45.3% of the total mortality of all ages from this cause.

Scarlet fever, though far behind, comes next in fatality among the first class, and Pneumonia and Bronchitis together cause the same mortality as Scarlet fever.

It is worth your while to note too that the mortality from Diphtheria at the school-going age is 45.4% of the total mortality of that disease at all ages, Enteric (Typhoid) fever 27.7%, Scarlet fever 32.8%, Measles 20%, Bronchitis and Pneumonia 16.1%. Other facts of value will be found in the table but enough has been made to appear to prove the duty of the Teacher in the attempt to diminish or prevent the spread of infectious disease.

But how? In this way: Apply to your Local Board of Health, or directly to the Secretary of the State Board at Red Wing for copies of the Memoranda upon Diphtheria, Enteric(Typhoid) fever, Scarlatina, Measles, and the disposal of excreta, and read them all, but particularly the one which discusses the disease which happens to be prevailing, if any. You will find that for prevention it is convenient to study Diphtheria, Scarlet fever, and Measles together because they agree in being infectious in the secretions of the nose and mouth, and all but Diphtheria in the eruption of the skin.

H.

TO BE CONTINUED.

### INFECTIOUS DISEASES OF MAN.

#### NOTIFICATION OF INFECTIOUS DISEASES, SEPTEMBER, 1892.

Diphtheria .....	70 cases,	15 deaths.
Scarlatina .....	39 cases,	2 deaths.

#### INFECTIOUS DISEASES—THEIR WHEREABOUTS.

(Our office register is a large map showing every township, borough, village, and city. Infectious diseases are recorded by colored pins as soon as reported, and this mark is not removed till the outbreak is officially reported to have ceased, and disinfection done.)

MINNESOTA.—*Diphtheria* during September invaded 23 localities in 17 counties, 1 locality in 14 counties, and 3 in 3.

*Scarlatina*, during September, invaded 11 localities in 10 counties, 1 locality in 9 counties, and 2 in 1.

THE WORK OF THE INSPECTORS OF THE STATE BOARD OF HEALTH, appointed early in September, cannot be judged by the bare statistics of inspection, but they constitute a part of the history of the last month and are therefore given here:

St. Paul—Dr. Ferd Hilbert, Inspector: 25 reports of 499 immigrants and other passengers.

Minneapolis—Dr. F. B. Samson, Inspector: 23 reports of 187 immigrants.

Winona—Dr. J. S. Traey, Inspector: 14 reports of 36 immigrants.

Duluth—Dr. C. F. McComb, Inspector: 12 report of 25 immigrants. Dr. E. N. McGiffert, inspector: 2 reports of 5 immigrants.

Albert Lea—Dr. J. M. Todd, Health Officer, has promptly and efficiently kept an oversight of travel through his city, at the request of the Secretary.

*Reports of U. S. Commissioners of Immigration from the sea-ports specified, for the month of September, 1892.*

Number of reports received from U. S. Commissioners of Immigration during August, 1892.....	6
Number of suspected immigrants reported .....	218

Details as follows:

FROM NEW YORK HARBOR.

Immigrants exposed to measles.....	197
" " Asiatic cholera.....	21

The immigrants went to 57 different places in the State; 73 separate lists were sent out by the Secretary to the Local Boards of Health.

*INFECTIOUS DISEASES OF DOMESTIC ANIMALS.*

*Glanders—*

SEPTEMBER, 1892.

Remaining on hand, Sept. 1.....	32	Killed during the month.....	1
Reported during the month.....	4	Released during the month.....	0

Remaining isolated Oct. 1, 35.

Most of them "suspects" under observation.

*MINNESOTA WEATHER SERVICE.—REPORT FOR AUGUST, '92.*

FURNISHED BY MINNESOTA STATE WEATHER SERVICE, J. H. HARMON, DIRECTOR.

ATMOSPHERIC PRESSURE—IN INCHES.—Monthly mean for State, 30.00; maximum observed 30.33, at Alma City, on the 19th; minimum observed, 29.60, at St. Vincent, on the 2d; range, 0.73.

TEMPERATURE, DEG. F.—Monthly mean for State, 67.4; monthly mean for northern section, 65.5; monthly mean for central section, 67.1; monthly mean for southern section, 68.4; highest monthly mean, 70.2, at Morris; lowest monthly mean, 61.0, at Long Prairie; maximum observed, 95, at Crookston, on the 2d, 13th, 14th; minimum observed, 32, at Leech Lake and Pokegama on the 31st, and St. Vincent on the 30th; range for State, 63; monthly mean maximum for State, 79.4; monthly mean minimum for State, 55.6; greatest local monthly range, 62, at St. Vincent; least local monthly range, 39, at Pine River Dam; greatest daily range, 38 at St. Vincent, on the 1st; least daily range, 4, at St. Vincent on the 28th.

PRECIPITATION—IN INCHES.—Average for State, 3.61; average for northern section, 3.82; average for central section, 4.33; average for southern section, 3.34; greatest amount, 5.82, at Granite Falls; least amount, 1.53, at Albert Lea.

WIND.—Prevailing direction, south.

FORECASTS.—According to the reports of displaymen, the weather bureau forecasts during the month, for Minnesota, were verified as follows: Weather, 81.5; temperature, 79.5; weather and temperature combined, 80.7.

**DISTRIBUTION AND MORTALITY OF THE MORE IMPORTANT DISEASES IN MINNESOTA in Angst, 1892, (from returns of 750 localities, received up to September 24, 1892.)**

POPULATION, (CENSUS OF 1890.)

STATE.....	1,301,826
1. First Class (cities of over 100,000), St. Paul and Minneapolis.....	297,894
2. Second Class (cities of between 15,000 and 50,000), Duluth and Winona.....	51,823
3. Third Class (cities of between 5,000 and 15,000), Stillwater, St. Cloud, Mankato, Faribault, Red Wing, Brainerd and Rochester.....	51,622
4. Fourth Class (20 cities and villages of over 2,000 and less than 5,000 population) .....	60,819
5. Fifth Class (cities, villages and townships, population less than 2,000).....	840,668

The following tables are founded on 846 deaths in August.

MORTALITY IN STATE.—AUGUST.

Average of 5 years.

	Total. August, 1892.	Localities Invaded	Counties Invaded	August. No. of Cases.	Ann'l Rate per 1,000 Living
From all causes.....	846—444 m., 40 f.*			926.5 (av. 4 yrs)	8.66
Tuberculosis.....	71—28 m., 43 f.	33	21	82.3 (av. 3 yrs)	.76
Diphtheria.....	23—14 m., 9 f.	14	14	26.75	.25
Croup.....	3—1 m., 2 f.	2	2	4.	.03
Pneumonia.....	12—7 m., 5 f.	3	3	18.2	.17
Bronchitis.....	8—4 m., 4 f.	2	2	10.3 (av. 4 yrs.)	.09
Enteric Fever.....	20—10 m., 10 f.	7	7	34.2	.21
Scarlatina.....	10—5 m., 5 f.	5	5	9.4	.08
Whooping Cough.....	14—6 m., 8 f.	9	7	2.8	.02
Measles.....	1—1 m., 0 f.	1	1	5.4	.05
Diarrh. Dis. of Chil'n247—129 m., 118 f.	34	25	273.2	2.55	
Influenza.....	3—0 m., 3 f.	2	2	2.3 (av 3 yrs.)	.02

\* 2 unknown.

MORTALITY BY CLASSES. (See population above.)

	1—First Class.	2—Second Class.	3—Third Class.	4—Fourth Class.
From all causes.....	499—249 m., 248 f.*	73—33 m., 40 f.	52—25 m., 27 f.	62—38 m., 24 f.
Tuberculosis.....	31—11 m., 20 f.	4—3 m., 1 f.	4—2 m., 2 f.	3—1 m., 2 f.
Diphtheria.....	8—3 m., 3 f.	1—1 m., 0 f.	3—2 m., 1 f.	1—0 m., 1 f.
Croup.....	None.	None.	2—0 m., 2 f.	None.
Pneumonia.....	10—5 m., 5 f.	None.	1—1 m., 0 f.	1—1 m., 0 f.
Bronchitis.....	2—0 m., 2 f.	None.	1—1 m., 0 f.	None.
Enteric Fever.....	10—4 m., 6 f.	6—2 m., 4 f.	1—1 m., 0 f.	1—1 m., 0 f.
Scarlatina.....	6—4 m., 2 f.	2—0 m., 2 f.	None.	None.
Whooping Cough .....	None.	None.	1—0 m., 1 f.	1—0 m., 1 f.
Measles.....	None.	None.	None.	None.
Diarrh. Dis. of Chil'n173—90 m., 83 f.	26—11 m., 15 f.	14—6 m., 8 f.	19—14 m., 5 f.	
Influenza.....	None.	None.	None.	None.

\* 2 unknown.

COMPARATIVE MORTALITY IN CITY AND COUNTRY, AUGUST, 1892.

	In 31 Cities and Villages, Population over 2,000 each. (461,158 Inhabitants.)	In Cities, Villages and Towns, Population less than 2,000 each. (840,668 Inhabitants.)
	Total Deaths.	Deaths to 1,000 Living.
From all causes.....	680—345 m., 339 f.*	18.11
Tuberculosis.....	42—17 m., 25 f.	1.1
Diphtheria.....	11—6 m., 5 f.	.29
Croup.....	2—0 m., 2 f.	.05
Pneumonia.....	12—7 m., 5 f.	.31
Bronchitis.....	3—1 m., 2 f.	.07
Enteric Fever.....	18—8 m., 10 f.	.57
Scarlatina.....	8—4 m., 4 f.	.21
Whooping Cough .....	2—0 m., 2 f.	.05
Measles.....	None.	
Diarrh. Dis. of Chil'n232—121 m., 111 f.	.84	
Influenza.....	None.	

\* 2 unknown.

Dead to 1,000 living.

Corrected to actual population  
for which deaths have been rep't'd

†State at large .....	7.81
Cities of First Class.....	20.65
Cities of Second Class.....	17.2
*Cities of Third Class.....	12.22
Cities and Villages of Fourth Class..	12.52
{ C., V. and T. of Fifth Class.....	2.3
719 Cities, Villages and towns reported for August.	

† Actual population accounted for, 896,027.

\* Brainerd not reported.

‡ Population 434,889.

11.49

20.65

17.2

13.78

7.47

4.48

## ENTERIC (TYPHOID) FEVER.

An unfortunate familiarity with this disease, by both physicians and people, seems to have made them forget its constant and serious sickness and mortality rate, and its fatality among the very flower of our population.

Its average toll of deaths for the last five years has been 50 a month, 581 per annum, or nearly 5 per cent. of the total of deaths from all causes. Forty-six per cent. of its mortality occurs in the autumn; the maximum of monthly mortality is in October (106) and the minimum in May (22). Sixty-one per cent. of its victims are males, and 37 per cent. are between the ages of 20 and 30 years, and nearly 70 per cent. are between 15 and 40 years.

As to *parent nativity*, it must be borne in mind that 56 per cent. of our population are foreign born.

The nativity, and parent nativity of the dead of Enteric Fever (average 5 years) are as follows :

<i>Nativity.</i>	<i>Per cent.</i>	<i>Parent-nativity,</i>	<i>Per cent.</i>
Born where died.....	9.98	Both parents American.....	14.63
Born elsewhere in Minnesota.....	12.40	Both parents foreign.....	66.85
Born in other U. S.....	20.65	One parent foreign.....	3.51
Foreign-born.....	52.67	Unknown parentage.....	15.01
Birthplace unknown.....	4.06		

*What is Enteric (Typhoid) Fever?* It is a slow fever usually characterized by a persistent diarrhoea after the first week, with some swelling and tenderness above the right groin. It is peculiar also in having a regular rise of temperature from morning to night of two or three degrees. Its incubation period is long—21 days; the crisis comes, usually, three weeks from the beginning; relapses are frequent and convalescence usually slow. Mortality varies, average about 10 per cent.

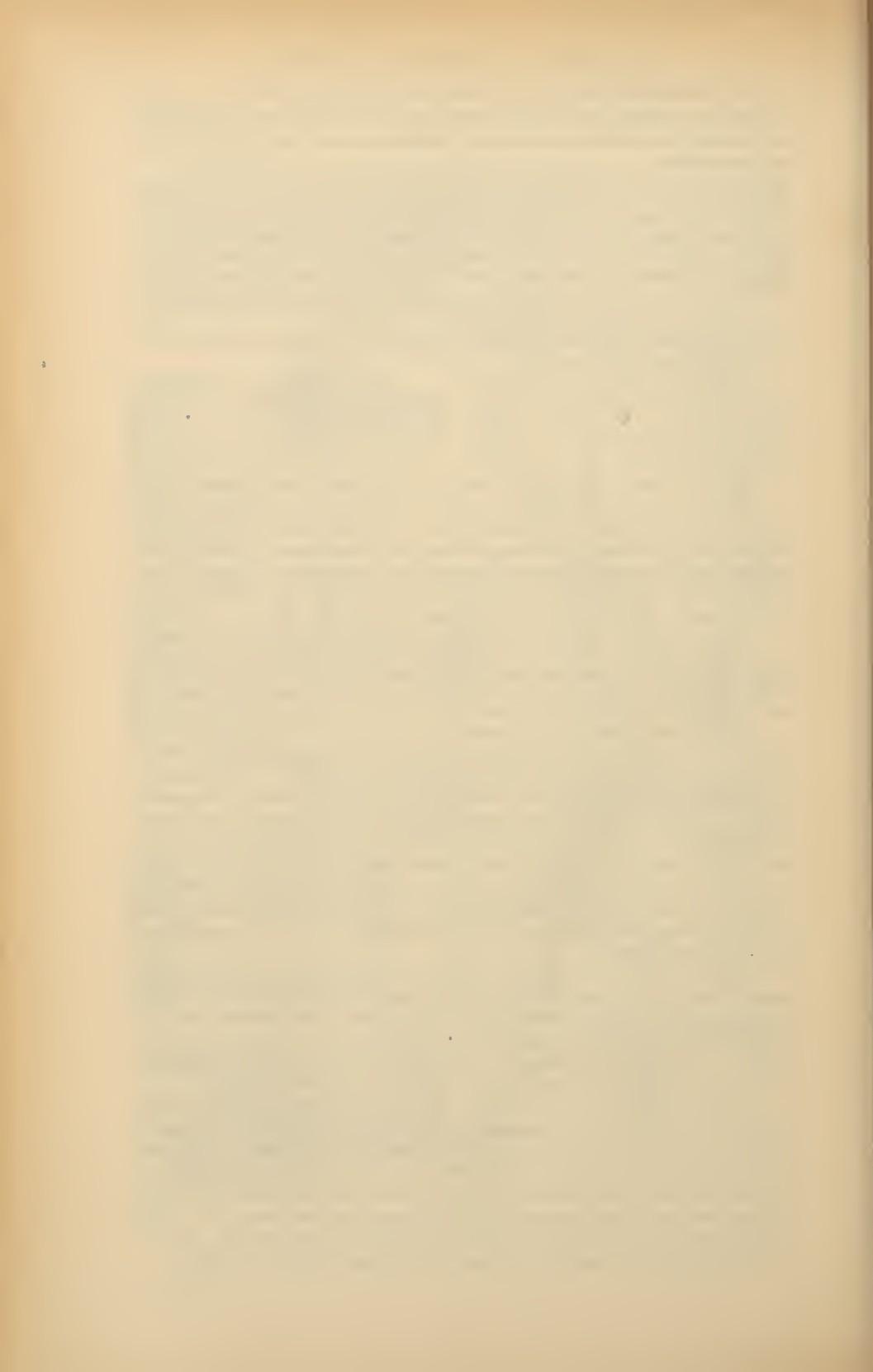
*Why not call it Typhoid?* Because the name implies an untruth. It is not like typhus, which is what typhoid means, but is a distinct disease. Typhus is so rare that very few physicians ever saw it, and it has never been seen in Minnesota. Enteric fever (the so-called typhoid) is, as we have seen, common with us.

*Where does Enteric fever come from?* It is a "filth disease," but filth alone cannot produce it. There must be its specific cause, which comes from the bowels, and in the excreta of its victims. This cause can grow and multiply outside the human body when it finds a congenial home. That it does in "hole in the ground" privies and other underground collections of human excreta. From thence or from the persons and bed-rooms of the untidy sick it gets into food and drink, as milk, water, and the like. It must go into the mouth to reach the small intestines, where it begins an attack on its host while reproducing its kind in enormous amount to escape with the dejecta, ready, if circumstances favor, for new victims.

*Enteric fever is near akin to Asiatic Cholera.* Both are "filth diseases;" both have a specific cause, cultivated in the bowels of the victim and escaping, for further destruction, in his dejecta. Both can be "crushed out" in the same way. Neither can exist except in isolated cases, in a "clean" city, town, or village, i. e., one in which there is no possibility for human excreta to foul the soil, water, or air, of inhabited places.

*How to prevent Enteric fever?* Any one who has read this memorandum, can answer that question so far as he is concerned, (if a householder,) for himself by reading the circular on "Disposal of Excreta and Garbage," to be obtained of the Board of Health, (or of the Secretary of the State Board, address Red Wing.) When he has done his duty by his own family in this respect let him secure protection from his neighbor's neglect by insisting that the Local Board of Health do its duty too by enforcing the plain requirements of Chapter 132, Laws 1883.

C. N. H.



# GLANDERS.

## An Abstract of the Latest Information as to its Causes, Prevention and Control.

Statistics of the Disease in Minnesota from March 1, 1885, to October 1, 1892.

DATE.	Animals Isolated.	Animals Killed.	Animals Released.	Localities Invaded.	Counties Invaded.
March 1, 1885, to October 1, 1885.....	231	132	99	76	31
October 1, 1885, to October 1, 1886.....	251	193	58	63	34
October 1, 1886, to October 1, 1887.....	185	118	67	78	39
October 1, 1887, to October 1, 1888.....	248	194	54	81	40
October 1, 1888, to October 1, 1889.....	102	57	45	59	36
October 1, 1889, to October 1, 1890.....	82	67	15	40	24
October 1, 1890, to October 1, 1891.....	132	72	49	53	28
October 1, 1891, to October 1, 1892.....	81	43	19	34	22
	1312	876	406		

1. *Glanders and Farcy are the same disease, differing only in location.* The common cause of both is a peculiar poison associated with a specific microscopic plant shaped like a little rod and so called a bacillus. During the seven years which have passed since the control of diseases of domestic animals became the duty of the State and Local Boards of Health the affection of the nose, and glands under the jaw, popularly classed together as "Glanders," has been the most common variety of the disease, "Farcy" comes next, and cough and disease of the lungs the last. All forms have been chronic in the great majority of cases, the last the most insidious and dangerous of all.

2. *The fact that the common cause of these apparently different afflictions operates in so various ways makes the obscure forms of Glanders difficult, even for an experienced Veterinary Surgeon, to discover.* This fact is constantly used by unprincipled dealers to explain any suspicious symptoms in horses they offer for sale, and the common use of such terms as "Catarrh," "Nasal Gleet," "only a little cold," "epizootic," and the like should arouse suspicion, and provoke very careful inquiry.

3. *In any form Glanders is an infectious disease, communicable to some other animal's and to man.* Several cases of the last have been recognized in Minnesota, and others have doubtless occurred which passed as "blood poisoning" from unknown cause. The infection is transmitted by direct contact; by means of infected things; and, possibly, by dust in the air. It is, for practical purposes, an incurable disease. It occurs, most frequently, in the crowded quarters of livery, street-railway, and

contractors' barns, if not kept in first rate sanitary condition. A large proportion of the cases of Glanders reported and dealt with by the Local Boards of Health have been bought of traveling horse traders, without warranty, and often without knowing even the name of the seller, so that it has sometimes been difficult for Boards of Health to trace the fraud for lack of definite data. Farmers, teamsters and draymen cannot be too careful in asking the name and responsibility of the seller of such animals, and should insist on a thorough trial before purchase. A sharp bit of work after the operation of a brisk physic, will frequently develop symptoms not before apparent; as it is difficult to keep a glandered horse in "condition" when at work, or to conceal the disease.

**HOW ARE LOCAL BOARDS OF HEALTH TO DEAL WITH ANIMALS REPORTED TO BE GLANDERED?**

4. When possible call a Veterinary Surgeon to be "by them selected," that is, one in whom the Board have confidence and would trust with their own stock. Have him examine the suspected animal and fill Form 2, of the blanks for the purpose, furnished from this office, complying with all the requirements of the blank. The Board will be guided by his written advice, so given, and will serve a copy of the certificate on the Secretary of the State Board, with report of their action.

5. If the certificate reports the case doubtful, the Board will serve Form 1 of the same series of blanks upon the owner or care-taker after filling it properly. Animals isolated after exposure to Glanders, or because they are suspected of having the disease, are left in the care and at the expense of the owner, because they are often fully able to work, and, until the disease is fully recognized, may be permitted to do so on the farm of the owner, provided he contract that the animal shall expose no one but his mate, and that neither shall leave the farm or associate with other animals till the isolation is removed by the Board who ordered it. The owner uses such animals at his own risk and assumes the responsibility or danger of infection, to others, from them.

*As soon as the fact of the existence of Glanders is established by the certificate of the Veterinary Surgeon selected by the Board as above, the Board issue the order for slaughter on Form No. 3, which is also for disinfection, and insist on its immediate execution. No appraisal is to be made of glandered animals, nor any compensation allowed except "to the owner, an equitable sum for the killing and burial."*

6. BUT SUPPOSE (AS IS SOMETIMES THE CASE IN COUNTRY DISTRICTS) THAT A RELIABLE VETERINARY SURGEON IS NOT AVAILABLE, WHAT IS A LOCAL BOARD TO DO? Isolate all animals reasonably suspected of the disease, or of having been exposed to it till such time as a competent adviser can be gotten and report to the Secretary of the State Board. In most well marked cases of Glanders, in any of its forms, the evidence is so clear that no one familiar with horses can be deceived after a careful examination and trial, as above suggested, and it is not uncommon for owners to ask to have such animals condemned.

7. Remember that the forms most common among work horses are chronic, slow in progress, and that the essential symptoms are local. IN

GLANDERS THEY ARE DISCHARGE FROM THE NOSE, WITH INFLAMMATION, THICKENING AND OFTEN ULCERATION OF ITS LINING MEMBRANE, WITH A HARD SWELLING OF THE GLAND UNDER THE LOWER JAW. At first the discharge is glutinous, adhering to the skin and hair around the nostrils, forming soft greasy-feeling crusts of a deep brown color. Later the discharge becomes pus (matter) of a slightly greenish tint which many think very characteristic.

8. *Farey rarely attacks young, well-bred and well-fed horses, or the mule.* Its victims are usually the common-bred, or worn-out and old horses. It is an affection of the glands, and is preceded by some fever and constitutional disturbance. The local affection consists of lumps (enlarged glands) just under the skin where it is thinnest and most sensitive, on the face, the neck, but most commonly inside the limbs. These lumps are often connected by the swollen lymphatic "cords," as they are commonly called, while the swellings are named "Farey buds." Like the nasal swellings, these "buds" burst and become jagged sores, with raised edges and hard bases, slow to heal, disposed to get bigger, and often with yellowish crusts. When well marked there can be no difficulty in recognizing this variety of the disease.

9. *The acute forms of any variety begin with sharp symptoms, go on rapidly to characteristic evidence, and they are usually fatal speedily, (eight to ten days).* The chronic forms are often very tedious, lasting for many months. These are the forms which occasionally "seem to get well." Common experience shows that recovery is not proven nor to be relied on, as it frequently happens that animals apparently well give the disease to others, and much valuable stock has been lost in this way.

10. HOW TO PREVENT THE SPREAD OF GLANDERS. First. *Boards should induce representative horse owners to unite with them in careful oversight of suspicious animals and horse traders.* These last are too often the means of introducing the disease and therefore need watching as do all sale, feed and livery stables, and particularly herds of horses coming in for sale or trade.

Second. *To isolate animals who, in the opinion of the Local Board, are reasonably suspected of having the disease, or to have been exposed to it, till competent advice can be had, or sufficient time allowed for the owner to call counsel, or for the disease to show itself.* Such isolation should be at the risk and expense of the owner, and with full security for other stock.

11. HOW IS GLANDERS, IN EVERY FORM, CONVEYED? The infection is in the discharges from affected animals. If conveyed in the air it is in the form of dust. The most probable method is by direct contact of the sick with the well, or by the means of buckets, water troughs, blankets, bridles, anything in fact, which can collect, carry or preserve the discharges from the sores. The affection of the lungs is doubly dangerous because usually unsuspected.

12. HOW TO DIMINISH THE DANGER OF SUSPECTED CASES, AND TO DISINFECT THINGS AND PLACES AFTER THE KNOWN PRESENCE OF THE DISEASE. The virus is easily destroyed by dryness, free air, and sun-

light. It may be preserved for many days by moisture, darkness, and in water. Boiling water very soon, and hot water (above 160° F.) in a few minutes, are fatal to it. With hot water, therefore, all harness, bits, blankets and other covers, may be surely disinfected. Straw and anything else used as bedding should be burned. Stables and stalls should be washed down with fresh and hot quick-lime as whitewash. Use a broom and apply the wash freely. Sprinkle the floors with fresh lime in powder, freely. After a few days whitewash again, sweep clean, burn the rubbish and the barn is safe. *But do not forget that thoroughness is essential to the success of disinfection.* Warn all concerned not to handle glandered or suspected horses without great caution, and require all suspicious cases to be isolated till the real disease is known.

See the backs of the forms in use for dealing with Glanders for other details.

13. *The law for dealing with Glanders is Chapter 200, Laws 1885. (See "FULL FILE" sent to every Board of Health and to be kept for reference.)* Section 1, makes it the duty of Boards of Health to isolate all animals having infectious diseases, or which have been exposed to infection. If left in the care of their owners, as is done for animals suspected of Glanders, it is at their risk and expense, and mostly for two reasons: First. That if able they may work without danger to other animals. Second. That the owner may have the benefit of the doubt, and that steady hard work will most surely and quickly develop the disease, if it exist.

14. The selection and pay of the Veterinary Surgeon is left to the Local Board of Health by Section 2 of the Law.

15. NO APPRAISEMENT IS PERMITTED FOR A GLANDERED ANIMAL, AND NO COMPENSATION except "an equitable sum (the custom is \$3.00 to \$5.00 for each animal commonly, but that is regulated by the Local Board, who pay for it).

16. It is the duty of all Local Boards of Health to keep the Secretary promptly informed of the existence of this, or any other infectious disease, so that the State Board may give any assistance in its power, and protect other localities from infection.

17. This circular will be distributed freely by Health Officers, Chairmen, and any other members of Boards of Health. It and all other information on the subject may be obtained directly by a postal card, addressed to

C. N. HEWITT, M. D.,  
Secretary State Board of Health,  
Red Wing, Minn.

October 1, 1892.

# PUBLIC HEALTH IN MINNESOTA.

CHARLES N. HEWITT, M. D., Editor.

OFFICIAL PUBLICATION OF THE STATE BOARD OF HEALTH  
AND VITAL STATISTICS.

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DIPHTHERIA follows its invariable custom and is more prevalent in October than in any other month of the year. It seems to be more than usually limited to cities and, in mortality, to spare the country districts. (e. g. In September there were 36 deaths in villages and cities with 461,158 population, while in populations under 2,000, in all 840,668 people, there were but five deaths reported).

St. Paul and Minneapolis together report but ten deaths for over 300,000 population, while Mankato with less than 10,000 population reports the same number, Chaska with less than 3,000 population reports six deaths, Red Wing with less than 8,000 population reports four deaths, Owatonna two, St. Cloud and Faribault but one each.

Winona (about 20,000 pop.) did not have a death from this cause, and Duluth (about 40,000 pop.) had but one.

These are puzzling facts, not to be accounted for, wholly, by the action of the Local Board of Health, nor by causes with which we are acquainted, but they call for more careful

observation and investigation of all the discoverable facts than is now customary with Health Officers. Outbreaks which began in September are holding over into October and in some instances, increasing in virulence and mortality.

This fall the disease has been "*endemic*," and sharply so, but its usual appearance for several years has been what we have called "*family*" because limited to a single family and immediate associates as a rule.

---

A SIATIC CHOLERA has not been even suspected to be anywhere in this country since the last of September, nor has it appeared at any Sea-coast Sanitary Station since then. The sum total of its record in the United States and Canada was limited to immigrants from one foreign city, (Hamburg), by one S. S. Line, (Hamburg), to one port (New York), and nearly to one month (September.) It is a disputed question whether the Hamburg infection did not come from France, where the disease appeared early in April, long before it was discovered anywhere else, but was disguised by the authorities so well that Americans who were there this summer never heard of anything serious. Now the mortality tables tell another story. The English experience has had the effect to make them less careless than heretofore, for now they demand good evidence of the destination of persons coming from suspected places who cannot explain their whereabouts, and they detain suspects for several days, which they did not do a year ago. (See account of the management of small-pox at Gravesend, in this Journal, Vol. VII, page 32.) Still, if we compare the English sea-coast methods last September with those of our own sea-board authorities, there will be found occasion for vigorous criticism of some of our sea-coast methods.

The actual responsibility in Great Britain for sea-coast sanitary regulation is a very mixed affair, especially at ports like Liverpool, but the burden of infectious disease, if it come, is always upon the local authority very much as in this country, except that with us it may be a State authority, which was the case in New York Harbor. For the Local Government Boards of England and Ireland, we have no analogue in this country. The question of the right and ability of State authority to support itself against the attempt of any Department of the National Government to interfere, direct, or embarrass its work, was thoroughly tested in the harbor of New York in September. All will agree it is very desirable that the matter of authority and co-operation should be thoroughly settled before next spring.

As to inter-state arrangements and the ability of State Boards of Health to carry out their contracts, or to come to binding agreements with other State Boards, that, it is to be hoped, will also be clearly settled, on the basis of legal and specific authority. The Chicago meeting of State Boards marked a distinct advance in this direction, but this matter was not formally determined. The essential thing for any one State is to have such co-ordination between Local and State authorities that any measures of prevention and control for infectious disease found needful, can be enforced everywhere without friction but with promptness and decision.

**L**EPROSY—SHALL ITS VICTIMS BE ISOLATED AS HAVING A DISEASE WHICH IF NOT SO GUARDED, WILL SPREAD TO OTHER PERSONS BY INFECTION OR CONTAGION? The State Board of Health of Pennsylvania is the only one in the United States which reports leprosy with small-pox and cholera as an infectious disease for which isolation is enforced. The isolation is ordered and enforced by the Local Board of Health we suppose, but doubtless by the advice of the State Board. Other State Boards of Health have "resolved" that leprosy be isolated but are dependent on the approval and action of Local Boards to make the resolution a practical fact. Last March there was, we were informed, a case of leprosy shut up on Brother's Island in New York harbor, by order of the Local Board of Health, with cases of typhus and small-pox. If the action of these eastern sanitary authorities is right that of the State Board of Health of Minnesota is wrong, and it is this view of the question which justifies allusion to it now. This Board has made a special study of leprosy and for twenty years it has kept a complete roster of cases for that time giving all discoverable facts, and this with the direct co-operation of leprosy specialists sent here to make the same inquiries. No where else in this country has similar work been done for an equal time or with the same persistence and thoroughness. (See Dr. Gronvold's report to August 1st, 1892, in the July number of PUBLIC HEALTH IN MINNESOTA.) The outcome of our study is simply this established fact, that *in forty years the Norwegian population has furnished the few lepers whom we have had; that every case brought the disease from Norway; that some have lived here to old age, and have descendants of the fourth generation also living here and none exhibit a trace of the disease.* This Board has ample power to enforce any form of isolation which it might choose but has limited its requirements to insisting that lepers occupy their own beds, and use their own personal clothing, towels and utensils, it has left the carrying out of this instruction to the Local Boards of Health with the hearty co-operation of the family and usually of the leper himself. This is done at the suggestion of the Chief of the Leper Service of Norway who visited this country to study the disease here, and whose study here brought him to confirm our experience over twenty years, that most intimate personal relation, as of husband and wife, like every other had failed, in Minnesota, Wisconsin, or Iowa, to pass the infection from one person to another. Because of the recognized possibility of such distribution elsewhere, our reasonable restriction was imposed. Should such a case occur here further attention would be given to it. At present it would be infinitely more rational to isolate cases of syphilis, because it is known to be almost inevitably infectious, of common occurrence, and to be a common cause of suffering, disease and death. Until Pennsylvania and New York will isolate cases of this disease, any court in the country would judge the isolation of a leper unjust and illegal.

#### VITAL STATISTICS.

**P**LEASE READ THE FOLLOWING FACTS AS TO THE SUCCESS of the *monthly* collection and return of the facts of Births and Deaths.

It is now nearly six years since this report to the Secretary of the State Board of Health was made obligatory on all Health Officers and Clerks of Townships. Our readers remember what a struggle it has been to enforce the law for monthly reports and how many prophesied its utter failure. This long trial has been enough to prove the value and economy of the law. To show the truth of the matter here are some facts which have come out in the ordinary work of the Secretary worth the attention of all.

At the beginning of the effort, and to save Health Officers and Clerks as much as possible, vexatious bother, the Secretary offered to correspond direct-

ly with attending physicians as to causes of death, if their names and addresses were made part of the record of deaths. This is now the rule and in carrying out his part of the contract the Secretary wrote, during 1890-91, 1,612 letters to physicians and 526 to Clerks, for this purpose alone. The result was the correction of the reports of cause for about 2,000 deaths, six per cent of the whole number, and the further result has been much improvement in the definiteness of the original reports, and less occasion to write for correction.

Every month these returns of death cause are notice to the Secretary of the whereabouts and character of existing disease, particularly of infectious and preventable affections. The Sanitary Code (Ch. 132, laws 1883) requires the immediate report of all infectious diseases to the Local Boards of Health, and by them to the Secretary of the State Board. It will be readily seen how these two reports serve as checks upon each other, and so when the report of a death by infectious disease has not been preceded or accompanied by a report of the outbreak, an inquiry blank is promptly sent out to the Health Officer or Chairman of the locality where the death occurred, asking for the delayed report. For example, in 1891 the Secretary was able to locate outbreaks of Diphtheria or Scarlatina in 446 different localities. In Townships our records show that eighty per cent of the Chairmen report infectious disease promptly, and that the other twenty per cent are called to the duty by the receipt of the Secretary's notification. Many of the others began to be prompt after such a notice. Surely no argument is needed to prove the value of *this side of the monthly service of the Vital Statistics* in the prevention and control of infectious disease.

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#### THE HEALTH OF CHILDREN IN THE PUBLIC SCHOOLS.

(Continued from September Number.)

HAVING supplied yourself with the memoranda published by the State Board of Health (through your Local Health Officer or the Secretary of the State Board, address Red Wing) read them all but particularly the one which relates to any disease which may threaten, or be present among the children of the town or other place where your school is. Inquire frequently of the Local Board of Health, and ask its executive officer to keep you informed of the presence of infectious disease. In country districts and small towns it will sometimes happen that you will learn of sickness in the families of your children before the Local Board, and in such cases give the Health Officer or the party acting as such, the name, residence and reported disease, that he may investigate. Should there be any difficulty in finding the proper officer or any lack of attention to reasonable requests, apply directly to the Secretary at Red Wing who will put you on the way to hearty co-operation. *In writing to him always give the name of village, city or township, and specify just what you want.* In the great majority of cases you will find every disposition on the part of your Local Board to help you, and thanks for your assistance. The circulars on the different infectious diseases will be found to contain about all the information you need; should anything be lacking write directly to the Secretary, as above, who will give you a prompt reply.

*But it is not in emergency that your most effectual work can be done for your pupils and your own good health,* it is rather in the every day routine of the school life that your service as the Health Officer of a school is most useful. If you will come to understand this and its importance you will never pass an hour in school without a benificent use of your art. The first basis fact is this: Children more than adults need abundant and fresh air. I use the word "fresh" advisedly because air may be chemically pure and yet be unfit to breathe. It is you know a mechanical mixture of gases of which all are essential and the mixture is one made "in the open," a natural result of an infinite variety of forces under the supreme law whose work we do not fully understand. To get an idea of the difference between natural and artificial air, imagine one made in the laboratory by the most skilful chemist and compare it with that which comes "from out of doors," they might correspond chemically but physically, and in that chemistry which stands close to the processes we call life they would differ so widely that practical use for breathing would condemn the one and instinctively demand and use the other. Now, in houses, we are utterly unable to secure the quantity or quality of fresh air supplied in the open, the difference is not only great but essential, and never to be lost sight of. "Perfect ventilation by artificial means" is impossible and tolerable ventilation is the best you can expect with your utmost care in the school house. Another fact, the suspended matter in the air has much to do with its healthfulness, more than is suspected. Remember that the specific poisons of Diphtheria, Scarlet-fever, Whooping-cough, Measles, Small-pox, Typhus and other infectious diseases are breathed floating in the air, the most common method of their distribution. There are other matters, causes of danger to health which reach us in the same way.

(To be continued.)

THE NOMENCLATURE AND CLASSIFICATION OF DISEASE IN THE returns of births and deaths is becoming more difficult every day, and the time has fully come for a thorough overhauling of the old tables of the Royal College of Physicians of England which are, practically those of this country as well. The American attempts at change of which Woodward's "Typho-malarial" is an example, have not tended to clearness of definition. It is curious, but natural that current theories of disease affect nomenclature, and so it happens that the species of what the old doctors lumped as "scrofula," but we now call "tuberculosis," are becoming very numerous and are reported often, as if they represented specific diseases rather than the protean forms of the local manifestations of a common cause. "Heart failure," a fashionable professional term of very indefinite meaning, is the only cause given for many deaths in this State in 1891, by physicians.

"Cancer" can be no longer accepted without some specification as to species and locality, and the same is true of "Peritonitis." These are samples of corrections which in the aggregate amounted to 998 in 1891, asked for and made in the returns of causes of death for that year, to enable the Secretary to compile the Vital Statistics.

**INFECTIOUS DISEASES OF MAN.****NOTIFICATION OF INFECTIOUS DISEASES, OCTOBER, 1892.**

Diphtheria .....	114 cases,	33 deaths.
Scarlatina .....	46 cases,	2 deaths.

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**INFECTIOUS DISEASES—THEIR WHEREABOUT.**

(Our office register is a large map showing every township, borough, village, and city. Infectious diseases are recorded by colored pins as soon as reported, and this mark is not removed till the outbreak is officially reported to have ceased, and disinfection done).

MINNESOTA.—*Diphtheria* during October invaded 25 localities in 20 counties, 1 locality in 12 counties, 2 in 7 counties and 3 in 1.

*Scarlatina*, during October, invaded 12 localities in 11 counties, 1 locality in 10 counties, and 2 in 1.

PENNSYLVANIA reports October 8, 3 cases Small Pox at Pittsburg, origin not known. October 8, 8 cases at New Castle, Lawrence County. First case diagnosed Chicken Pox, supposed origin sitting near sick lady on train. October 8, 2 cases at Philadelphia. Origin unknown. October 18, 130 cases Diphtheria at Philadelphia, 37 of these cases proved fatal during last week. October 18, 1 case of Leprosy. Origin not yet reported. He is isolated in hospital. All of the above cases are residents.

ONTARIO, PROVINCE OF—*Port Arthur*, October, 1892—Small pox was reported to be in a hotel of this place October 1, by an Inspector of the U. S. Immigration Bureau at Duluth, was confirmed on telegraphic inquiry by the Secretary of the Provincial Board, who answered: "Oct. 4, two new cases, three in all;" and Oct. 31, again reports, "Three cases at Port Arthur of the hotel where the previous cases occurred." It thus appears that for more than a month small pox has persisted in a hotel of Port Arthur (on the north shore of Lake Superior), and still new cases. A detailed statement has been requested because of possible danger to Duluth and passengers thence will be looked after at Duluth.

Toronto, October 4: "Two cases, a man and nurse, supposed to be due to old rags—not imported." Oct. 17, "Two cases—who are two physicians—exposed to first case which was not supposed to be small pox."

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*Reports of U. S. Commissioners of Immigration from the seaports specified for the month of October, 1892:*

No report received.

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**INFECTIOUS DISEASES OF DOMESTIC ANIMALS.**

<i>Glanders—</i>	OCTOBER, 1892.	
Remaining on hand, Oct. 1 .....	35	Killed during the month..... 2
Reported during the month .....	6	Released during the month..... 1
	Remaining isolated Nov. 1, 38.	

Most of them "suspects" under observation.

## DISEASES OF DOMESTIC ANIMALS.

**G**LANDERS has caused some loss and trouble in certain localities where Health Officers and Chairmen of Township Boards have neglected to follow up reports made to them. When any one makes a complaint of the existence of an infectious disease giving the name of owner and signing the complaint it is not only the duty of the Local Board to investigate but it is for their interest as well. Should such disease spread to other than the cases reported, through the delay or neglect of a Local Board or its executive officer, there is little doubt that such Board, or perhaps officer, could be held to legal responsibility, at any rate such neglect would render them subject to the penalty of the law of their organization.

*Black-leg of cattle* has been reported in a few cases but the adoption of isolation for the sick and suspected, with reduced diet and free use of cleanliness, fresh air and sunlight, and regular doses of salt-petre or iodide of potash has stopped the extension of the disease.

*Scab in sheep.* This disease due to burrowing insect, as is itch in man, yields readily to washing with tobacco water and to cleanliness and isolation. No unaffected stock should be permitted to have the run of a pasture, yard or barn which has been occupied by infected animals.

*Winter care of stock to avoid infectious diseases.* Animals need fresh air, clean quarters, abundant light, warmth, and proper food more in winter than at any other season, because their life at this season is artificial and they are helpless to get these essentials for themselves to a considerable extent, while in warm weather, provided a good pasture and fresh water, they care for themselves.

## MINNESOTA WEATHER SERVICE.—REPORT FOR SEPT., '92.

FURNISHED BY MINNESOTA STATE WEATHER SERVICE, J. H. HARMON, DIRECTOR.

ATMOSPHERIC PRESSURE—IN INCHES.—Monthly mean for State, 30.02; maximum observed 30.34, at Duluth, on the 8th; minimum observed, 29.27, at St. Vincent, on the 9th; range, 1.07.

TEMPERATURE, DEG. F.—Monthly mean for State, 60.3; monthly mean for northern section, 57.9; monthly mean for central section, 60.0; monthly mean for southern section, 61.5; highest monthly mean, 63.4, at Minneapolis; lowest monthly mean, 56.2, at Long Prairie; maximum observed, 99, at Granite Falls, on the 23d; minimum observed, 22, at Pokegama Falls on the 26th; range for State, 77; mean maximum for State, 72.3; mean minimum for State, -9.1; greatest local monthly range, 65, at Granite Falls; least local monthly range, 35, at Clear Lake; greatest daily range, 54, at St. Vincent on the 26th; least daily range, 2, at Duluth, on the 19th.

PRECIPITATION—IN INCHES.—Average for State, 1.47; average for northern section, 1.01; average for central section, 0.64; average for southern section, 1.97; greatest amount, 3.82, at Bird Island; least amount, 0.18, at Montevideo.

WIND.—Prevailing direction, south.

FORECASTS.—According to the reports of displaymen, the weather bureau forecasts during the month, for Minnesota, were verified as follows: Weather, 79.3; temperature, 77.1; weather and temperature combined, 78.4.

**D**ISTRIBUTION AND MORTALITY OF THE MORE IMPORTANT DISEASES IN MINNESOTA in September, 1892, (from returns of 799 localities, received up to October 24, 1892.)

POPULATION, (CENSUS OF 1890.)

STATE .....		1,301,826
1. First Class (cities of over 100,000), St. Paul and Minneapolis.....		297,894
2. Second Class (cities of between 15,000 and 50,000), Duluth and Winona.....		51,323
3. Third Class (cities of between 5,000 and 15,000), Stillwater, St Cloud, Mankato, Faribault, Red Wing, Brainerd and Rochester.....		51,622
4. Fourth Class (20 cities and villages of over 2,000 and less than 5,000 population) .		60,319
5. Fifth Class (cities, villages and townships, population less than 2,000).....		840,658

The following tables are founded on 864 deaths in September.

MORTALITY IN STATE.—SEPTEMBER. Average of 5 years.

Total.	Localities September, 1892. Invaded	Counties Invaded	September. No. of Cases	Ann'l Rate per 1,000 Living
From all causes.....861—471 m, 391 f *	391 f *		882.6	8.25
Tuberculosis.....73—27 m, 46 f	23	19	78. (av. 3 yrs)	.73
Diphtheria.....41—20 m, 21 f	13	13	40.6	.38
Croup.....5—4 m, 1 f	4	4	7.2	.07
Pneumonia.....22—10 m, 12 f	10	9	24.2	.23
Bronchitis.....11—7 m, 4 f	5	5	13.5 (av. 4 yrs.)	.13
Enteric Fever.....39—23 m, 16 f	11	10	55.4	.52
Scarlatina.....7—4 m, 3 f	4	4	6.6	.06
Whooping Cough.....9—3 m, 6 f	7	7	10.5 (av. 2 yrs)	.09
Measles.....None				
Diarrh. Dis. of Chil'n147—81 m, 13 f	59	38	154.8	1.45
Influenza.....1—1 m, 0 f	1	1	1.6 (av. 3 yrs.)	.01

\* 2 unknown

MORTALITY BY CLASSES. (See population above.)

1—First Class	2—Second Class	3—Third Class	4—Fourth Class
From all causes.....373—212 m, 159 f *	85—43 m, 42 f	55—29 m, 26 f	76—43 m, 33 f
Tuberculosis.....39—15 m, 24 f	10—6 m, 4 f	2—2 m, 0 f	5—1 m, 4 f
Diphtheria.....10—7 m, 3 f	1—0 m, 1 f	16—5 m, 11 f	9—5 m, 4 f
Croup.....3—2 m, 1 f	1—1 m, 0 f	None	None
Pneumonia.....11—7 m, 4 f	2—1 m, 1 f	2—0 m, 2 f	4—1 m, 3 f
Bronchitis.....7—4 m, 3 f	1—1 m, 0 f	2—1 m, 1 f	None
Enteric Fever.....16—6 m, 10 f	12—8 m, 4 f	4—4 m, 0 f	3—3 m, 0 f
Scarlatina.....3—2 m, 1 f	3—1 m, 2 f	None	1—1 m, 0 f
Whooping Cough ... 4—0 m, 4 f	None	None	None
Measles.....None	None	None	None
Diarrh. Dis. of Chil'n 53—32 m, 21 f	26—13 m, 13 f	6—3 m, 3 f	16—8 m, 8 f
Influenza.....None	None	None	None

\* 2 unknown

COMPARATIVE MORTALITY IN CITY AND COUNTRY, SEPTEMBER, 1892.

In 31 Cities and Villages, Population over 2,000 each (461,158 Inhabitants)	In Cities, Villages and Towns, Population less than 2,000 each (840,668 Inhabitants)
---	--

Deaths to 1,000 Total Deaths.	Deaths to 1,000 Living.	Deaths to 1,000 Total Deaths.	Deaths to 1,000 Living.
From all causes.....589—327 m, 260 f *	15.54	275—144 m, 131 f	3.96
Tuberculosis.....56—24 m, 32 f	1.47	17—3 m, 14 f	.21
Diphtheria.....36—17 m, 19 f	.95	5—3 m, 2 f	.07
Croup .....	.11	1—1 m, 0 f	.01
Pneumonia.....19—9 m, 10 f	.5	3—1 m, 2 f	.04
Bronchitis.....10—6 m, 4 f	.26	1—1 m, 0 f	.01
Enteric Fever.....25—21 m, 14 f	.92	4—2 m, 2 f	.05
Scarlatina.....7—4 m, 3 f	.18	None	
Whooping Cough... 4—0 m, 4 f	.11	5—3 m, 2 f	.07
Measles.....None		None	
Diarrh. Dis. of Chil'n101—56 m, 45 f	2.66	46—25 m, 21 f	.66
Influenza.....None		1—1 m, 0 f	.01

\* 2 unknown.

†State at large .....

Cities of First Class.....15.44

Cities of Second Class.....20.14

\*Cities of Third Class .....12.92

Cities and Villages of Fourth Class.. 15.35

{ †C. V and T of Fifth Class..... 3.93

{ 768 Cities, Villages and towns reported for September.

† Actual population accounted for, 901,364.

\* Brainerd not reported.

‡ Population 474,938.

Corrected to actual population  
for which deaths have been rep'd.

11.67

15.44

20.14

14.58

15.35

7.00

# PUBLIC HEALTH IN MINNESOTA.

CHARLES N. HEWITT, M. D., Editor.

OFFICIAL PUBLICATION OF THE STATE BOARD OF HEALTH  
AND VITAL STATISTICS,

PUBLISHED MONTHLY AT THE OFFICE OF THE BOARD, RED WING MINN.

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**R**ABIES: (falsely called hydrophobia) Very suspicious cases of what seemed at first sight this dreaded disease, appeared in Alexandria early in December. The first notice the Secretary had of the outbreak was a newspaper item. Long familiarity with the anxiety and suffering such reports, no matter how ill-founded, always occasion, induced him to write to the Health Officers asking for the facts; for the head of the first suspected dog; for a re-publication in local paper of the essential part of the circular on rabies; for a free distribution of copies of the circular, and for the re-assurance of those unduly alarmed, by proper treatment of dogs, (suspected and others,) and offering any assistance possible. The first dog's head arrived on the 24th and as soon as possible Pasteur's test was used with no unfavorable result to the rabbit used, demonstrating beyond reasonable dispute that the dog was not rabid.

These facts belong to the January report, but because of unavoidable delay in issuing the November and December

numbers, it is possible to give the widest distribution to this important result, and so put at ease the minds of many who have been, naturally, very much disturbed. The operation was very carefully performed, and a full dose of the part of the dog's brain most virulently affected in rabies, was injected into the membranes of the rabbit's brain. That animal being under chloroform, suffered nothing, but was quietly munching cabbage two hours after, and no signs of the operation remained after two days. Had the virus of rabies been in the dog's brain the rabbit would have infallibly died before the twentieth day, but she is to-day (thirty-five days after) hearty and well. Another rabbit was inoculated ten days ago with the brain of a horse thought to have died of rabies, near Alexandria, and is, to all appearance, well to-day. The cause of death will be decided, so far as possible, by the condition of the rabbit between the 4th and 20th of February.

The secretary visited Alexandria on the 22d day of January, and counsellel with the Local Board of Health, city officials, and prominent citizens. Was unable to find any suspected animals: had a post-mortem on the horse suspected to have died of rabies (experiment with brain now in progress): visited Osakis and made post-mortem of another horse and found evidence of some form of septicaemia, but no symtsoms of rabies. A dog and calf dead at same place gave no sufficient symptoms to suspect rabies.

Eighty-nine letters to as many Health Officers, of villages and Chairmen of Township Boards of Health around the suspected district have failed to elicit evidence of the disease.

But what is the disease of which so many animals died? The reply must be that not many have died, though many dogs have been killed on suspicion. It has been impossible to induce people to allow suspected animals to live long enough to enable Veterinary Surgeons or the Secretary to investigate, and the post-mortem examinations which we have made taken in connection with the Pasteur test do not justify the belief that the disease was rabies. Reports from other districts for several years and such post-mortems as have been possible point to other diseases, not of an infectious nature, as the probable cause of some of the deaths—a form of distemper for dogs, and malignant catarrh for cattle.

There is only one way to certainty in this matter and it is a

very simple one. Carefully keep all animals suspected of rabies isolated by themselves, where they can do no harm to anyone, but where they can be watched till death, and if symptoms justify the experiment, the brain can then be carefully removed into a clean vessel, covered with glycerine and sent to the secretary. It must be distinctly understood that experiment will be made only with a brain of an animal: 1. Who has bitten a human being. 2. Who has exhibited well marked symptoms of rabies and has bitten other animals. 3. There must accompany the specimen a clear account of its source, and the reason why an examination is asked.

Specimens sent with no description, or reliable history, and not directly associated with danger to the life of man or domestic animals, will not be used. There is too much work, expense, and valuable time in the careful performance of experiments of this kind to waste them for curiosity or upon cases in which there is no reliable history.

Always consult a competent veterinary surgeon for sick animals as you do your physician for your family. Having done that, you will be better able to judge what cases should be reported to your Local Board of Health, or to the State Board.

---

TYPHUS FEVER is again endemic in New York City. The first cases since July 19th occurred in week ending December 3d, 1892, two in Fourth ward. In week ending December 10th, three cases in three wards. Week ending Dec. 17th, no cases and two deaths. Week ending Dec. 24th, one case and one death. Week ending Dec. 31st, eleven cases, no deaths. Week ending Jan. 7th, 1863, ninety-two cases in twelve wards and fifteen deaths. Week ending Jan. 14th, twenty-six cases in eight wards, twenty-two deaths. Jan. 21st, sixteen cases in eight wards, eleven deaths.

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#### AMERICAN PUBLIC HEALTH ASSOCIATION.

##### MEETING IN MEXICO.

THE first result of this meeting (not wholly expected when the move was made) is that this body is not National, but International. It is no longer made up of Health Officers, and citizens of the United States, but of the same classes from Canada, Mexico, and (if they accept the invitation) the Central American States, and South America.

This change was very apparent in the official acts of the Mexico meeting, and if it had not been for an old rule that all resolutions must be sent to the Executive Committee before

going before the general meeting for discussion and vote, resolutions relating to their work, and not approved by the majority of the United States delegates, would have been adopted despite their opposition. Experience of this meeting teaches very clearly that the Association is no longer the place for discussing sanitary questions relating to any one country, or for any other than the consideration of matters of interest to all Nationalities represented. It now has an International character and can no longer represent the work of the men who organized it. It has voluntarily assumed a larger field, and the American Boards of Health, and others associated with them may have to decide speedily if a *National Public Health Association* is needed, and if so, what its character should be, and what its relations to the International Association, whose first meeting has just been held in Mexico, and into which the old American Public Health Association has merged.

The difficulties inseparable from the use of two languages, not only in formal papers, but in debate, were clearly demonstrated in Mexico, and by nothing more clearly than by an appeal, in Spanish, for an endorsement of the official acts of the Health Officer of the Port of New York. It was shown also by the almost entire absence of discussion of the papers or resolutions offered to the Association. Other difficulties appeared in the action of Committees, and the lack of interest in meetings where it was known that important matters were to be considered.

Representative Mexican brethren did all in their power to lessen these difficulties, but it was impossible to secure that intimate and quick mutual understanding which the use of a common language alone permits. For future success, all debates and discussions relating to matters proposed beforehand; resolutions offered or motions to be made must be in English. In other words, English must be the official language of the Association, except that all papers or arguments prepared beforehand and accompanied by an authorized English translation, may be admitted. There is no other way out of the evident difficulties of two languages. Two or three of the United States delegates attempted to speak in Spanish, but no Mexican, I think, attempted to speak in English.

Mexican Hospitality, official and private, was all and more than the delegates from outside their Republic, had any right to expect. Every Mexican, official or not, seemed to have joined to make the visit and every thing associated with it, as as perfect and enjoyable as possible; their success was remarkable, and the pleasure and gratitude of their visitors was proportionate.

*What was done in Mexico about Cholera?* was the constant thought of every working delegate, and the first question asked him at home. The answer is not difficult to give. A general resolution was adopted approving the organization of National quarantine services for the control of infectious diseases off, or on, the sea-board; and this resolution was purposely so general in language that, though there was a very strong feeling against any new plan, there was a general agreement to pass it. It was a compromise. (See page 91.)

There was no opportunity given for discussion of impending cholera invasion from any other standpoint than that of the sea-board service, and doubtless, (for most of the delegates) that was the most important question even for many who came from inland States. Why this should be so the writer cannot explain, except on the principle that it is easier for them to discuss and decide what the sea-coast boards should do than to determine what they should do themselves. It was evident the majority believed that cholera will come in 1893, and so it was, perhaps, too much to expect any other question to be seriously discussed at this meeting, which, as international in its character, did not directly concern Inland States and their Local Boards of health.

*What ought to be done in Minnesota in view of the anticipated re-importation of Cholera in 1893?* The first and most important step should be taken by the Health Officers and Physicians by thoroughly believing, and teaching others to believe, that our greatest security is to be found in insisting upon the best possible sanitary condition of every Township, Village, and City in the commonwealth, and by this is meant that, through its Local Boards of Health, every locality shall make a fearless and thorough investigation of its sanitary condition and promptly correct what is amiss. This inquiry should be made.

First—As to the *healthfulness of its soil*, as respects its sufficient drainage; its freedom from the accumulation of decaying animal matter, and above all of human excreta; of deposits of other decaying matter from kitchen and wash-room refuse; from the excreta of domestic animals, and the organic refuse of offensive trades.

Second—After the above has been thoroughly done, the provision of a pure water supply will not be so difficult.

This investigation and the work that grows out of it, if faithfully and regularly made, will give us the best security against cholera by depriving it of the soil in which it can grow.

CHOLERA PROSPECTS are not encouraging abroad, for the disease has not disappeared in Hamburg, and is taking new and local phases in France Prussia and Austria. England is increasing the forces of trained inspectors (who have had previous experience as local medical officers of health) and the relations between the Local Government Boards of England, Ireland, and Scotland, and the Local Sanitary organizations, is becoming more intimate and helpful.

The proceedings of the Conference of sea-port medical Officers of Health in London the other day revealed the need for a thorough overhauling of their methods of disinfection, and management in case of infectious disease on ship-board, and a better mutual understanding and co-operation between themselves and with the central Board at Whitehall.

*As to American prospects*, they are certainly not any better than they were last year at this time, for since then Cholera effected a landing and distribution in New York City, before its first detection on ship-board at quarantine in September, 1892. Thanks to the resolute and sensible work of the city Board of Health, though distributed in as many wards as there were cases, the disease was confined to the first affected, and not a reasonable suspicion exists that any other cases have occurred any where else in this continent, to date.

*How to prepare for the possibilities of the future*, is the question of greatest present importance. It has already been discussed in these pages and will be again.

## INFECTIOUS DISEASES OF MAN.

**S**CARLATINA, *Scarlet-rash and Scarlet-fever are one and the same disease.* (see circular on the subject) and it is time that Physicians, Health Officers and Chairmen of Township Boards take every opportunity to correct the common mistake that any form of this disease can be permitted to occur without strict isolation and disinfection. The following notification and correspondence illustrates this question, and give an example of how the monthly reports of deaths help in the discovery of infectious disease:

MINNESOTA STATE BOARD OF HEALTH AND VITAL STATISTICS.  
OFFICE OF SECRETARY AND EXECUTIVE OFFICER.

RED WING, January 19, 1893.

C——— W——— C. B. S. S——— P. O. S——— of C——— Co.

DEAR SIR: It is reported to me that 2 children of P. M.——— died December 21, 29 of Scarlet Fever.

Your attention is called to the above extracts from the law as to the control of infectious diseases of men, and you are requested to make an immediate investigation, and report, as there required, stating, in detail, the action taken. Report your subsequent action till the matter is disposed of and return this sheet entire. Yours respectfully,

CHARLES N. HEWITT, M. D.  
Secretary and Executive Officer.

In reply to the above I have to report the facts and the official action of this Board in the above matter as follows:

We examined the case and found that P. M.——— has lost two children but not by Scarlet Fever. The physicians said it was Scarlatina or something similar to Scarlet Fever and that we had better quarantine the premises, we done so until danger was past, and now I think all danger is past. I thought of reporting the matter to you but I did not think that it was really necessary, but if it is my duty to report all such cases, I will do so hereafter and do it promptly.

C——— W———, Chairman.

Use other side of sheet if necessary. Chairman or Health Officer.

Dated.....189... P. O.....

To which the Secretary replied: "Am obliged for your prompt reply and promise to report more promptly hereafter, of Scarlatina and other infectious diseases. If all Chairmen will when aware of this duty, do as you propose, we shall be able to stop many an outbreak of disease, and save much child sickness and mortality. Please read the circular on Scarlatina and report regularly and immediately hereafter."

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REPORT OF A COMMITTEE OF THE AMERICAN PUBLIC HEALTH ASSOCIATION  
ON NATIONAL HEALTH LEGISLATION.

CITY OF MEXICO, November 30, 1892.

TO THE AMERICAN PUBLIC HEALTH ASSOCIATION:

Your committee on National Health Legislation respectfully reports that it has given to this subject careful and long-continued study and discussion, and now offers a brief outline of its conclusions with respect to the Public Health Service of the United States.

It is well known to this Association that, while many of the States in the United States, and Provinces in Canada have excellent State Boards and Provincial Boards of Health, and the Republic of Mexico has a well organized Federal Board of Health, the United States federal government has, as yet, no Public Health Service worthy of such a great country. Only a few of the several div-

isions of work which should be performed by a great nation for the safety of life and health among its people have been provided for. Its Public Health Service should include several Divisions, such as:

1st. For the collection and compilation of mortality statistics, sickness statistics, and meteorological statistics, and for the utilization of all such statistics in gaining accurate knowledge of the causes of mortality, the causes of disease, and the progress made from time to time in the prevention of each important disease through the measures adopted.

2d. For bacteriological and other laboratory investigations, such as those to learn methods for the production of immunity, and into the causes of diseases of mankind, similar to those which have already been so successfully made by the U. S. Government into the causes of diseases of animals and plants, and such as have been legally provided for by the Republic of Mexico relative to the diseases of man, and such as have yielded such brilliant and valuable results in Germany, through the laboratory work of Prof. Koch, in France by the work of Pasteur, and in England by the Local (General) Government Board.

3d. For a system of inter-state aid in protection from the spread of dangerous diseases, which system shall be based upon the well-known principles of sanitary science, being a system of inspection, isolation of infected persons and things, and final disinfection.

4th. For a National Quarantine Service, which shall do what no local quarantine can so well do—utilize the information obtained in every foreign country by the United States diplomatic and consular service, utilize the knowledge gained by all the several divisions of the National Health Service, and systematize the quarantine service, so that instead of being, as now, exceedingly weak and inefficient in many places, it shall be uniformly effective.

The National Public Health Service should be organized under a responsible head, into a bureau, or a Department of Public Health, with divisions such as have been named; and each division should have, for its chief officer, an expert in that special branch of sanitation. The chief sanitary officer of the government should be chosen by a commission of sanitary experts, and should not be subject to removal from office so long as he faithfully and properly discharges his duties. He should annually submit to the head of said department, or to the President of the United States, for transmission to congress, estimates for the expenses necessary to sustain properly the health department during the ensuing year. His duties, however, as the chief sanitary officer of a great nation, need not be here specified. Such a permanent National Commission of sanitarians as has been referred to, should be provided for by congress, and should not consist of *ex-officio* members, but of the leading sanitarians of the country, appointed because of their experience in practical sanitary work.

Your committee believes, also, that it will be well for the United States Government to provide for the organized assistance of the health departments of the several States, by authorizing the President to call a meeting in Washington, of delegates, one from each State Board of Health, once in each year, or whenever co-operation or conference is deemed advisable.

(Signed)                    H. P. WALCOTT, Chairman,  
                                J. D. PLUNKETT,  
                                IRVING A. WATSON,  
                                HENRY B. BAKER.

---

**T**HE DISPOSAL OF THE SEWAGE of Winona has been a problem for some years which, after due deliberation, has been settled as below described by her Health Officer.

"The city of Winona, for the sixty blocks of its present sewerage system, runs its sewage through the smooth and straight pipes, above described, a part of which pipes are of vitrified earthen material and a part of iron. Dur-

ing that part of the year when the stage of water in the river will permit, the discharge is by gravity alone, and is through a single discharge pipe of twelve inches in diameter into the middle of the main channel of the river. As a provision against the back flow of water and sewage at times of high water, there is sunk by the side of and beneath the main discharge pipe, at about a flock from the river, an ejector chamber whose bottom and walls are of brick and cement, and which is entered by man-holes from the street above. In this under-ground room are two Shone pneumatic ejectors. When it becomes necessary to handle the sewage by means of the ejectors, the current is changed by means of gates in the main pipe, received by an ejector and by it elevated and forced out into the river through the same discharge pipe as before. The air pressure for the intermitting operation of the ejector is from great receivers located in a room of the city water works. The pressure of air in the receivers is kept up by air pumps which are moved by steam power from the boilers of the water works. The advantages of this Shone ejector system over any kind of pumping works for the elevation and ejection of the sewage is that the Shone apparatus is far less expensive in its maintenance and operation, and that the sewage is kept in kept in the close confinement of a pipe in its steady movement from where it is received to the place of its discharge, without an opportunity for temporary delay or any exposure to the air. The sewage, after its discharge into the channel of the great flowing river, is never heard from and probably never will be heard from, though its quantity should be greatly increased in future years.

So it is that large rivers with good currents will safely dispose of quite large quantities of city sewage. Small streams whose currents are sometimes slow, whose water is not always cold and whose channels are sometimes nearly dry, should never be allowed to receive any kind of sewage. The danger is to both man and beast. Fresh-water lakes are poor receptacles for the sewage of large cities; instance, Lake Michigan and Chicago. Sea-board cities have an advantage over those inland, especially those on the lakes, because the sewage of the former is discharged into cold salt-water where the tide twice in twenty-four hours carries away from the shore the offensive matter. Cultivated soil is, perhaps, the best and safest receptacle, where the situation is such that this disposal is practicable. The chemistry of the air, the soil, and the sunlight is what clothes the earth with its vegetation and makes animal life possible.

In future notes, something may be said concerning street pavements and surface drainage, the essentials of good house plumbing, heating and ventilation.  
F. S."

Other Minnesota cities are watching the success of the Winona experiment with great interest, and will be glad to get the itemized bill of cost to date, and the number of people who actually use the sewers by the disposal of all their fluid refuse in that way.

Dr. Staples has set an example which other Health Officers might follow to advantage, by writing up, in the local newspapers, the sanitary provision and condition of his city. It was from one of those articles that the above extract was taken.

#### INFECTIOUS DISEASES OF DOMESTIC ANIMALS.

##### *Glanders—*

NOVEMBER, 1892.

Remaining on hand, Nov. 1 .....	38	Killed during the month.....	3
Reported during the month .....	7	Released during the month .....	0
Remaining isolated Dec. 1, 42.			

DECEMBER, 1892.

Remaining on hand, Dec. 1.....	42	Killed during the month.....	3
Reported during the month .....	4	Released during the month .....	0
Remaining isolated, January 1, 1893, 11.			

Most of them "suspects" under observation.

### INFECTIOUS DISEASES—THEIR WHEREABOUT.

(Our office register is a large map showing every township, borough, village, and city. Infectious diseases are recorded by colored pins as soon as reported, and this mark is not removed till the outbreak is officially reported to have ceased, and infection done).

**MINNESOTA.**—*Diphtheria* during November invaded 19 localities in 13 counties, 1 locality in 11 counties, 2 in 2 counties and 4 in 1.

*Diphtheria*, during December invaded 30 localities in 21 counties; 1 locality in 15 counties; 2 in 3; 3 in 3.

*Scarlatina*, during November, invaded 17 localities in 11 counties, 1 locality in 9 counties, and 2 in 4.

*Scarlatina*, during December invaded 18 localities in 17 counties; 1 locality in 16 counties, and 2 in 1.

**MICHIGAN** reports, Nov. 4, a possible case of small pox, at Sault Ste. Marie; origin not reported.

**CONNECTICUT** reported, Nov. 14, 2 cases small pox at New Haven; residents cared for in isolation hospital. Nov. 19, 17 cases at New Haven cared for in hospitals. Origin unknown.

**ONTARIO** reports, Nov. 24, 1 case small pox at Toronto, in an immigrant.

**MAINE** reports, Dec. 15, 1 case varioloid at Deering; origin not known. Dec. 22, a second case; origin first case.

**DELAWARE** reports, Dec. 28, 1 case small pox at Wilmington, in negro. Precautions, hospital, fumigation, vaccination, etc. Dec. 27, 1 case small pox at Red Bank.

**OHIO** reports, Dec. 30, 3 cases small pox at Akron, Summit county. Residents removed to hospital; isolation, vaccination, etc. Dec. 31, a case at Norwood, near Cincinnati—immigrants from Hanover. Isolation and vaccination.

*Reports of U. S. Commissioners of Immigration from the seaports specified for the months of November and December, 1892:*

NOV. DEC.

No. of reports received from U.S. Commissioners of Immigration	4	4
Number of suspected immigrants reported .....	18	98

Details as follows: FROM NEW YORK HARBOR.

Immigrants exposed to measles.....	5	17
" " small pox .....	13	.....
" " diphtheria.....	.....	81
" went to different places in State .....	8	44

Separate notices sent out by Sec'y to the Local Boards of Health 8 47

### MINNESOTA WEATHER SERVICE.—REPORT FOR OCT., '92.

FURNISHED BY MINNESOTA STATE WEATHER SERVICE, J. H. HARMOY, DIRECTOR.

ATMOSPHERIC PRESSURE—IN INCHES Monthly mean for State, 30.04; maximum observed 30.50, at St. Vincent, on the 24th and Morris, 25th; minimum observed, 29.18, at St. Vincent, on the 17th; range, 1.32.

TEMPERATURE, DEG. F.—Monthly mean for State, 48.6; monthly mean for northern section, 46.4; monthly mean for central section, 47.1; monthly mean for southern section, 50.0; highest monthly mean, 53.4, at Minneapolis; lowest monthly mean, 43.3, at Long Prairie; maximum observed 91 at Ash Creek, on the 10th; lowest observed, 10 at Ash Creek, on the 25th; range for State, 81; mean maximum for State, .620; mean minimum for State, 36.8; greatest local monthly range, 81, at Ash Creek; least local monthly range, 49, at Duluth; greatest daily range 51, at St. Vincent on the 9th; least daily range 2, at Duluth, on the 1st.

PRECIPITATION—IN INCHES.—Average for State, 0.62; average for northern section, 0.26; average for central section, 0.21; average for southern section, 0.92; greatest amount, 2.49, at Grand Meadow.

WIND—Prevailing direction, northwest.

NOVEMBER, 1892.

ATMOSPHERIC PRESSURE—IN INCHES—Monthly mean for State, 31.08; maximum observed, 30.88, at St. Vincent, on the 22d; minimum observed, 29.32, at Moorhead, on the 6th; range, 1.56.

TEMPERATURE—DEG. F.—Monthly mean for State, 26.0; monthly mean for northern section, 20.8; monthly mean for central section, 25.3; monthly mean for southern section, 28.6; highest monthly mean, 30.4, at Ash Creek; lowest monthly mean, 19.0, at St. Vincent; maximum observed, 66, at Ash Creek, on the 13th; minimum observed, 25 below zero, at Pokegama Falls, on the 23d; range for State, 91; mean maximum for State, 35.5; mean minimum for State, 17.1; greatest local monthly range, 75, at Ash Creek; least local monthly range, 46, at Rochester; greatest daily range, 36, at St. Vincent, on the 26th; least daily range, 1, at Duluth, on the 30th.

PRECIPITATION—IN INCHES) Average for State, 0.69; average for northern section, 1.31; average for central section, 0.68; average for southern section, 0.43; greatest amount, 2.12, at Crookston; least amount, 0.10, at Ash Creek.

WIND—Prevailing direction, southeast.

DISTRIBUTION AND MORTALITY OF THE MORE IMPORTANT DISEASES IN MINNESOTA in October, 1892, (from returns of 897 localities, received up to November 24, 1892.) In November 1892 (from returns of 762 localities received up to Dec. 24, '92)

## POPULATION, (CENSUS OF 1890.)

STATE .....	.....	1,301,826
1. First Class (cities of over 100,000), St. Paul and Minneapolis.....	.....	297,894
2. Second Class (cities of between 15,000 and 50,000), Duluth and Winona.....	.....	51,323
3. Third Class (cities of between 5,000 and 15,000), Stillwater, St. Cloud, Mankato, Faribault, Red Wing, Brainerd and Rochester.....	.....	51,622
4. Fourth Class (20 cities and villages of over 2,000 and less than 5,000 population) .	.....	60,319
5. Fifth Class (cities, villages and townships, population less than 2,000). . . . .	.....	840,638

The following tables are founded on 796 deaths in October and 797 deaths in November.

## MORTALITY IN STATE.—OCTOBER.

Average of 4 years.

Total.	Localities October, 1892, Invaded	Counties Invaded	October, No. of Cases	Ann'dl Rate per 1,000 Living
From all causes....	796—433 m, 362 f *	35	813.	7.60
Tuberculosis.....	75—32 m, 43 f	23	67 6 (av. 3 yrs)	.83
Diphtheria.....	43—15 m, 28 f	15	48.5	.45
Croup.....	20—9 m, 11 f	7	14 3 (av. 3 yrs)	.13
Pneumonia.....	32—15 m, 17 f	12	30.5	.29
Bronchitis.....	11—3 m, 8 f	5	17 5	.16
Enteric Fever.....	48—26 m, 22 f	14	14	.46
Scarlatina.....	6—3 m, 3 f	3	14.3	.13
Whooping Cough... .	8—4 m, 4 f	6	5	.07
Measles.....	1—0 m, 1 f	1	2.	.02
Diarrh. Dis. of Chil'n	83—54 m, 29 f	34	24	.08
Influenza.....	None			

\* 1 unknown

## MORTALITY BY CLASSES. (See population above.)

1—First Class	2—Second Class	3—Third Class	4—Fourth Class
From all causes....	359—197 m, 161 f *	48—29 m, 19 f	34—21 m, 13 f
Tuberculosis.....	35—16 m, 19 f	2—0 m, 2 f	5—3 m, 2 f
Diphtheria.....	14—5 m, 9 f	6—1 m, 5 f	8—4 m, 4 f
Croup.....	15—6 m, 9 f	1—1 m, 0 f	None
Pneumonia.....	17—9 m, 8 f	1—0 m, 1 f	2—1 m, 1 f
Bronchitis.....	8—1 m, 7 f	None	1—1 m, 0 f
Enteric Fever.....	30—13 m, 17 f	8—6 m, 2 f	None
Scarlatina.....	4—2 m, 2 f	1—0 m, 1 f	None
Whooping Cough... .	3—2 m, 1 f	None	None
Measles.....	1—0 m, 1 f	None	None
Diarrh. Dis. of Chil'n	25—16 m, 9 f	5—5 m, 0 f	2—2 m, 0 f
Influenza.....	None	None	None

\* 1 unknown

## COMPARATIVE MORTALITY IN CITY AND COUNTRY, OCTOBER, 1892.

In 31 Cities and Villages, Population over 2,000 each (461,158 Inhabitants)	In Cities. Villages and Towns, Population less than 2,000 each (840,668 Inhabitants)
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Total Deaths.	Deaths to 1,000 Living.	Total Deaths.	Deaths to 1,000 Living.
From all causes....	494—273 m, 220 f *	13 04	4.35
Tuberculosis.....	46—21 m, 25 f	1.21	29—11 m, 18 f
Diphtheria.....	33—14 m, 19 f	.87	10—1 m, 9 f
Croup.....	17—7 m, 10 f	.45	3—2 m, 1 f
Pneumonia.....	22—11 m, 11 f	.58	10—4 m, 6 f
Bronchitis.....	9—2 m, 7 f	.24	2—1 m, 1 f
Enteric Fever.....	40—20 m, 20 f	1.06	8—6 m, 2 f
Scarlatina.....	5—2 m, 3 f	.13	2—1 m, 1 f
Whooping Cough... .	3—2 m, 1 f	.08	5—2 m, 3 f
Measles.....	1—0 m, 1 f	.03	None
Diarrh. Dis. of Chil'n	39—28 m, 11 f	1.03	44—26 m, 18 f
Influenza.....	None		.63

\* 1 unknown.

## Dead to 1,000 living

Corrected to actual population  
for which deaths have been rep't'd.

† State at large .....

7.44

Cities of First Class.....

14.86

Cities of Second Class.....

11.38

\* Cities of Third Class.....

7.99

Cities and Villages of Fourth Class..

10.71

{ C, V and T of Fifth Class.....

4.35

7.48

{ 886 Cities, Villages and towns reported for October.

† Actual population accounted for, 946,209.

\* Brainerd not reported.

† Population 490,754.

## MORTALITY IN STATE—NOVEMBER.

Average of 5 Years.

	Total November, 1892	Localities Invaded	Counties Invaded	November. No. of Cases	Avg'l Rate per 1,000 Living
From all causes.....	797—45 m., 330 f*			816.8	7.64
Tuberculosis.....	59—28 m., 31 f	19	18	70. (av. 1 yrs.)	.65
Diphtheria.....	54—36 m., 18 f	20	16	62.8	.59
Croup.....	29—17 m., 12 f	13	13	22.8	.21
Pneumonia.....	52—28 m., 24 f	22	20	52.6	.49
Bronchitis.....	15—8 m., 7 f	7	6	20.4	.19
Enteric Fever.....	39—22 m., 17 f	19	18	52.6	.49
Scarlatina.....	30—17 m., 13 f	16	14	18.4	.15
Whooping Cough.....	6—4 m., 2 f	6	6	9. (av. 3 yrs.)	.69
Measles.....	None			4. (av. 4 yrs.)	.02
Diarrh. Dis. of Chil'n.	23—14 m., 9 f	15	14	21.	2

\*2 Unknown.

## MORTALITY BY CLASSES. (See population above.)

	1—First Class	2—Second Class	3—Third Class	4—Fourth Class
From all causes.....	313—176 m., 135 f*	52—35 m., 16 f	45—29 m., 16 f	63—39 m., 24 f
Tuberculosis.....	35—13 m., 22 f	4—2 m., 2 f	3—2 m., 1 f	3—3 m., 0 f
Diphtheria.....	18—11 m., 7 f	4—4 m., 0 f	6—4 m., 2 f	11—7 m., 4 f
Croup.....	16—8 m., 8 f	3—2 m., 1 f	2—1 m., 1 f	1—1 m., 0 f
Pneumonia.....	29—16 m., 13 f	2—1 m., 1 f	5—2 m., 3 f	9—4 m., 5 f
Bronchitis.....	9—4 m., 5 f	None	N. ne	1—1 m., 0 f
Enteric Fever.....	15—10 m., 5 f	7—6 m., 1 f	6—4 m., 2 f	None
Scarlatina.....	8—4 m., 4 f	5—4 m., 1 f	2—1 m., 1 f	5—5 m., 0 f
Whooping Cough.....	1—0 m., 1 f	None	1—1 m., 0 f	None
Measles.....	None	None	None	None
Diarrh. Dis. of Chil'n.	9—6 m., 3 f	1—1 m., 0 f	None	1—0 m., 1 f

\*2 Unknown.

## COMPARATIVE MORTALITY IN CITY AND COUNTRY, NOVEMBER, 1892.

In 31 Cities and Villages,  
Population over 2,000 Each,  
(461,158 Inhabitants.)In Cities, Villages and Towns,  
Population less than 2,000 Each,  
(849,665 Inhabitants.)

	Total Deaths	Deaths to 1,000 Living	Total Deaths	Deaths to 1,000 Living
From all causes.....	473—280 m., 191 f*	12.49	324—185 m., 139 f	4.67
Tuberculosis.....	45—20 m., 25 f	1.19	14—8 m., 6 f	.20
Diphtheria.....	39—26 m., 13 f	1.03	15—10 m., 5 f	.22
Croup.....	22—12 m., 10 f	.68	7—5 m., 2 f	.10
Pneumonia.....	45—23 m., 22 f	1.19	7—5 m., 2 f	.10
Bronchitis.....	10—5 m., 5 f	.26	5—3 m., 2 f	.07
Enteric Fever.....	28—20 m., 8 f	.74	11—2 m., 9 f	.16
Scarlatina.....	20—11 m., 6 f	.52	10—3 m., 7 f	.14
Whooping Cough.....	2—1 m., 1 f	.05	4—3 m., 1 f	.06
Measles.....	None		None	
Diarrh. Dis. of Chil'n.	11—7 m., 4 f	.29	10—7 m., 5 f	.19

\*2 unknown.

## Dead to 1,000 Living

Corrected to actual population  
for which deaths have been rep't'd

†State at large..... 7.45

11.02

Cities of First Class..... 12.96

12.95

Cities of Second Class..... 12.32

12.32

\*Cities of Third Class..... 10.58

11.93

Cities and Villages of Fourth Class. 12.73

12.73

(†, V, and T, of Fifth Class..... 1.67

9.69

†731 Cities, Villages and Towns reported for November.

†Actual population accounted for, 879,984.

\*Brainerd not reported

†Actual population accounted for, 433,865.